

---

**From:** [REDACTED]  
**Sent:** 23 March 2015 11:02  
**To:**  
**Cc:**  
**Subject:** RE: glyphosate

Dear

Glyphosate is being considered under the AIR II procedure and was discussed at the PPR125 meeting end of February 2015.

We are aware of the IARC conclusions, the RMS will address it in an addendum to the RAR currently being drafted. I don't see a reason for the PPR to be involved.

Kind regards,



---

**From:**  
**Sent:** 23 March 2015 10:48  
**To:** [REDACTED]  
**Subject:** FW: unable to travel this week!

Dear colleagues,

There is a proposal of [REDACTED] to put a point at the agenda of the plenary meeting of the panel this week about the recent IARC classification of Glyphosate. It is quite unusual to have a discussion about an AS without any mandate and I'm not sure that it makes sense.

 Are you aware of this classification and is this something which is covered by the AIR II conclusions?

Kind regards,

---

**From:** [REDACTED]  
**Sent:** 23 March 2015 10:30  
**To:** [REDACTED]  
**Subject:** unable to travel this week!

Dear ~

Ok fine with me.

KR

2

18

---

**From:**  
**Sent:** 27 March 2015 15:52  
**To:**  
**Subject:** Glyphosate (IARC press release)

Dear ,

In preparation to the meeting with please see below the key information.

The BfR press release is available at:

<http://www.bfr.bund.de/cm/349/does-glyphosate-cause-cancer.pdf>

The conducted and planned actions are:

- 
- We have agreed with DE and they will include an assessment of the IARC statement in the addendum to the RAR
- We have contacted IARC, the full report (needed to understand the proposal) may take one year. Thus we have requested a list of the studies used by the WG, to check if there is new information
- We will consider the IARC statement in the EFSA conclusion

Note: MSs are getting pressure, but until now, the MSs have not submitted intentions for harmonised classification to ECHA

KR,

---

**From:**   
**Sent:** 23 March 2015 12:03  
**To:** C  
**Cc:** KA  
**Subject:** RE: Media Request from EU Food Policy on glyphosate (IARC press release)

Dear  
It is BfR.  
KR,

---

**From:**   
**Sent:** 23 March 2015 11:58  
**To:**   
**Cc:** F  
**Subject:** RE: Media Request from EU Food Policy on glyphosate (IARC press release)

Thanks ,

Is it the BfR or the BVL in Germany or both?

Best,

---

**From:**   
**Sent:** 23 March 2015 11:53  
**To:**   
**Cc:**   
**Subject:** RE: Media Request from EU Food Policy on glyphosate (IARC press release)

Dear ,

Your proposal is fine, this is an ongoing assessment. If useful, you can mention that the IARC assessment will be addressed by Germany as RMS and by EFSA. Maybe you could liaise with the Communication service of Germany as it seems that they are considering to prepare a press release on the issue.

KR

---

**From:** [redacted]  
**Sent:** 23 March 2017  
**To:** [redacted]  
**Cc:** [redacted]  
**Subject:** Media Request from EU Food Policy on glyphosate (IARC press release)  
**Importance:** High

Dears,

the International Agency for Research on Cancer published a press release on Friday, saying that as a result of the IARC evaluations, the herbicide glyphosate and the insecticides malathion and diazinon were classified as probably carcinogenic to humans (Group 2A). <http://www.iarc.fr/en/media-centre/iarcnews/pdf/MonographVolume112.pdf>

[redacted] is asking us, if we have a reaction to the IARC saying. [redacted] will put a story out today.

[redacted] course we cannot comment on an on-going assessment.

What we could say is that (as far as I know):

- Germany as RMS is currently preparing an update of the assessment following expert meeting discussions at EFSA
- Afterwards EFSA will draft its conclusion, followed by a MS consultations of 2 weeks on the draft conclusion.
- the legal deadline for the EFSA conclusion is on 13 August 2015

What are your views, anything to add or drop?

Best,

[redacted]  
Communications & External Relations Department



Via Carlo Magno 1A

43126 Parma, Italy

Tel. +39 0521 031

[www.efsa.europa.eu](http://www.efsa.europa.eu)

[twitter.com/EFSA\\_EU](https://twitter.com/EFSA_EU) 

*This e-mail, including its attachments, is intended only for the use of the recipient(s) named above. Unless you are a named recipient (or authorised by a recipient), access to this e-mail message or any disclosure or copying of its content, or any action taken in reliance on it is unauthorised and may be unlawful.*

## Does glyphosate cause cancer?

BfR Communication No 007/2015, 23 March 2015

In its recent evaluation from March 2015, the International Agency for Cancer Research (IARC), as the specialized cancer agency of the World Health Organization (WHO), came to the conclusion that glyphosate should now be classified as a carcinogenic substance in Group 2A (probably carcinogenic to humans), based on "limited evidence" in human-experiments and "sufficient evidence" in animal-experiments. This classification was published in a short report in the "Lancet" journal on 20 March 2015.

As the "Rapporteur Member State" for the active substance glyphosate within the framework of EU re-evaluation, the Federal Institute for Risk Assessment (BfR) was responsible for the human health risk assessment and has assessed glyphosate as non-carcinogenic. This was supported by competent national, European and other international institutions for health assessment including the WHO/FAO Joint Meeting on Pesticide Residues (JMPR). BfR is therefore issuing its comments on this classification by IARC based on the published short report.

The International Agency for Research on Cancer (IARC) is the specialized cancer agency of the World Health Organization. The main objective of the IARC is to promote international collaboration in cancer research. The evaluations of carcinogenic risk are made by international working groups of independent scientists and are qualitative in nature. No recommendation is given for regulation or legislation. For this reason, 17 experts from 11 countries met at the International Agency for Research on Cancer (IARC; Lyon, France) in March 2015 in order to assess the carcinogenic or potentially carcinogenic effects of 4 organophosphates and glyphosate. The working group classified glyphosate as "probably carcinogenic to humans". This assessment will be published as volume 112 of the IARC Monographs.

In the opinion of BfR, the classification of glyphosate as "carcinogenic in Group 2A" (probably carcinogenic to humans) as published in the 20 March 2015 issue of the "Lancet" journal comes as a surprise, since other evaluations performed by supranational bodies such as the WHO-Panel of the Joint Meeting of Pesticide residues (JMPR, 2004), and also by national regulatory agencies such as the U.S.EPA had concluded the contrary, i.e., that glyphosate was not carcinogenic. Unfortunately, the database on which the IARC evaluation is based is not known, since a background monograph that is usually produced by IARC following the evaluation meetings has not yet been released. Therefore, a comprehensive and scientifically sound consideration of the data and arguments that led to the IARC- conclusion is simply not possible at the moment.

In addition, Germany is the "Rapporteur Member State" in the ongoing re-evaluation process of glyphosate in the EU. For this purpose, an extensive "Renewal Assessment Report" (RAR) was provided in 2013 and has been revised in 2014 and again in 2015. The 2013 report was circulated by EFSA to the EU Member States and was made available for public consultation in 2014. Revisions were made to take into account the several hundred comments and remarks. The toxicological and residue chapters of the report have been prepared by the Federal Institute for Risk Assessment (BfR). For this purpose, BfR has compiled the most comprehensive toxicological database, presumably worldwide, for glyphosate. This database comprises hundreds of studies that were performed by or on behalf of the many manufacturers of glyphosate and thousands of references from the open literature. This huge amount of data makes glyphosate nearly unique among the active substances in plant protection products. BfR thinks that the entire database must be taken into account for toxicological evalua-

tion and risk assessment of a substance and not merely a more or less arbitrary selection of studies.

In the absence of more reliable information from IARC, BfR has tried to allocate the findings that are mentioned in the brief "Lancet" publication to certain studies in our database and, by doing that, to put them into perspective.

The new IARC classification for glyphosate as a carcinogenic substance is based firstly on "limited evidence" in humans. This risk is derived from three epidemiological studies in the USA, Canada and Sweden based on a statistical correlation between exposure to glyphosate and an increased risk of non-Hodgkin lymphoma. However, this assessment was not confirmed in a very large cohort of the also cited "Agricultural Health Study" or in other studies. A recent publication from 2012 has reviewed the epidemiologic literature to evaluate whether exposure to glyphosate is associated causally with cancer risk in humans and the relevant methodological and biomonitoring studies of glyphosate. The review found non-consistent patterns of positive associations indicating a causal relationship between total cancer or any site-specific cancer and exposure to glyphosate. The current report of BfR to the EU based on the evaluation of over 30 epidemiological studies came to the overall assessment that there is no validated or significant relationship between exposure to glyphosate and an increased risk of non-Hodgkin lymphoma or other types of cancer.

Secondly, IARC points to findings of studies based on animal experiments submitted by the producers of glyphosate as evidence for the carcinogenic effect of glyphosate. All these findings were also considered in the glyphosate assessments of BfR, which did support the conclusion of the Joint Meeting on Pesticide Residues (JMPR) of the FAO/WHO responsible for the assessment of active substances in pesticides: "In view of the absence of a carcinogenic potential in animals and the lack of genotoxicity in standard tests, the Meeting concluded that glyphosate is unlikely to pose a carcinogenic risk to humans". BfR does not have any information as to how many of the 11 long-term studies on rats and mice that were assessed as valid were available to IARC.

Moreover, IARC concluded that a glyphosate formulation promoted skin tumours. In general, testing of formulations should not be used for toxicological evaluation of active substances because co-formulants may alter the outcome to a large extent. Therefore, the claim, based on this 2-stage cancer model in mice, that a highly concentrated, skin-irritating formulation containing the active substance promotes skin tumours is not considered by the institutions in the EU to be evidence for the carcinogenic properties of glyphosate.

It is not possible to fully examine the indications for the genotoxic potential of glyphosate based on the short report published by IARC, in particular due to the fact that the assessment included studies using formulations that are not specified in any detail.

The fact that different bodies assess issues differently due to differing information and assessments of experimental data is part and parcel of the risk assessment process. BfR will therefore perform a thorough review of the classification issued by IARC once the monograph becomes available.

---

**From:**  
**Sent:** 24 March 2015 12:30  
**To:**  
**Cc:**  
**Subject:** RE: New Article on roundup causing cancer

Maybe it was related to a co-formulant. There were some articles in different media, but it is not always very clear what journalists conclude from a scientific study.

Anyway, since we are finalising the glyphosate assessment, we should be aware of assessments of other bodies like IARC.

Best regards,

---

**From:**  
**Sent:** 24 March 2015 11:13  
**To:**  
**Cc:**  
**Subject:** RE: New Article on roundup causing cancer

Thanks

We are looking forward to see the full report of the IARC assessment to understand their rationale for this conclusion.

Kind regards,

---

**From:**  
**Sent:** 24 March 2015 10:00  
**To:**  
**Cc:**  
**Subject:** New Article on roundup causing cancer

[http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(15\)70134-8/fulltext](http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(15)70134-8/fulltext)

These assessments will be published as volume 112 of the IARC Monographs.

---

**From:** [REDACTED]  
**Sent:** 27 March 2015 09:51  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Carcinogenic assessment of glyphosate by IARC

Thanks, I do not have further comments.

KR,

---

**From:**  
**Sent:** 27 March 2015 09:42  
**To:** C  
**Cc:** T; [REDACTED]  
**Subject:** FW: Carcinogenic assessment of glyphosate by IARC

Dear

Thanks for the draft. I made some minor amendments. Please feel free to ignore. Probably we should ask his agreement as a matter of courtesy and to be on the safe side, although I believe it would not be needed.

Regards

Scientific Officer  
Pesticides / Regulated Products



European Food Safety Authority

Via Carlo Magno 1A  
43126 Parma (Italy)  
Tel. +39 0521 036

[www.efsa.europa.eu](http://www.efsa.europa.eu)

[twitter.com/EFSA\\_EU](https://twitter.com/EFSA_EU)

[youtube.com/EFSAchannel](https://youtube.com/EFSAchannel)

---

**From:**  
**Sent:** 27 March 2015 09:34  
**To:** [REDACTED]  
**Subject:** FW: Carcinogenic assessment of glyphosate by IARC

Dear

Please see below my proposed answer to Dr [REDACTED] should we ask their agreement to share the list of reference with other MSs/Germany?

Your comments are welcome,

Thanks a lot

Dear

Thank you for your quick answer. Indeed the glyphosate assessment is of high importance to public health.



As we ~~should~~ will draft ~~ourselves~~ a the EFSA conclusion on glyphosate shortly, we would be grateful if you could provide us with your list of references to ensure that we do not miss relevant data. Kindly further inform us whether you would agree that we share this list with Member States participating to the peer review.

Best regards,

---

**From:**  
**Sent:** 26 March 2015 16:48  
**To:**  
**Cc:** K  
**Subject:** Re: Carcinogenic assessment of glyphosate by IARC

Dear

Thanks for your interest in the IARC assessment of of glyphosate. The full monograph with complete details of the evaluation will be published after fact checking and technical editing. This process typically takes about a year, but can be somewhat shorter or longer depending on the amount of material and the public health importance of the topic. However, if information about glyphosate is needed sooner, we would be glad to discuss providing Efsa with a reference list.

Best regards

IARC Monographs Section  
IARC/WHO  
150, cours Albert Thomas  
69372 Lyon cedex 08, France  
Tel: +33 (0)4 72 73  
Mobile:  
Email:

---

**From:**  
**Date:** Wednesday, 25 March 2015 17:25  
**To:**  
**Subject:** Carcinogenic assessment of glyphosate by IARC

Dear I

I'm working on the glyphosate peer review at the Pesticides Unit of EFSA.  
I took the opportunity of your participation to EFSA projects to ask my colleague, ..... r your contact.  
We are aware of the publication "Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate" by the IARC which is, of course, of great relevance to our assessment.  
Would it be possible for you to give me an estimation of the date foreseen for the publication of the volume 112 of the IARC Monographs where details on the carcinogenic assessment of glyphosate will be available?  
Or, if possible, to provide the list of studies available to the IARC assessment?

Thanking you in advance for your kind collaboration,  
Best regards,

---

**From:**  
**Sent:** 23 April 2015 17:16  
**To:**  
**Subject:** FvV: Carcinogenic assessment of glyphosate by IARC  
**Attachments:** Vol112.Glyphosate.All.docx  
  
**Importance:** High

Dear all,

See below IARC response to our request: 34 pages of references that are all published literature, including government reports (many from the US EPA, JMPR, IPCS, FAO, EFSA annual report).

Please note that "The glyphosate Monograph is undergoing accelerated production and can be made available to national and international agencies in early July 2015, following fact- and reference-verification and editing processes. Publication of Volume 112 in final layout is expected in 2016"

Kind regards

---

**From:**  
**Sent:** 23 April 2015 16:42  
**To:**  
**Cc:**  
**Subject:** Re: Carcinogenic assessment of glyphosate by IARC  
**Importance:** High

Der

Per your recent request, please find appended a list of references on glyphosate considered by the Volume 112 Working Group. This reference list is provided to you in strict confidence, as the Monograph is not yet publicly available. We kindly ask that you do not share this email or the attachments outside of your organisation (EFSA).

## Background information

The IARC Monographs are performed by panels of independent international experts, selected on the basis of their knowledge and experience as well as an absence of real or apparent conflicts of interest. IARC Working Groups follow established procedures and criteria for the selection, evaluation and integration of evidence. The identified epidemiology, bioassay and mechanistic data for the Monographs included peer-reviewed literature and government reports that were available in their final form. For exposure and other information (e.g., chemical and physical properties, production, use, and occurrence) published and unpublished sources of information may be included.

## References considered by the Working Group

The appended references were identified from comprehensive electronic searches of peer-reviewed literature, screened for relevance to the topic and supplemented by manual searching (e.g. of other authoritative reviews). Government reports in their final form were also considered. When published, volume 112 of the IARC Monographs on Carcinogenic Risks to Humans may not necessarily cite all listed studies (see [data for the Monographs](#)).

## Next steps

The glyphosate Monograph is undergoing accelerated production and can be made available to national and international agencies in early July 2015, following fact- and reference-verification and editing processes. Publication of Volume 112 in final layout is expected in 2016.

Thank you again for your interest in our work.

Kind regards,

Monographs Section

International Agency for Research on Cancer  
150, cours Albert Thomas  
69372 Lyon Cedex 08

France  
Tel: [+33] (0)4 78 26 30 00

---

**From:** [monographs@iarc.fr](mailto:monographs@iarc.fr)

**Date:** Monday 20 April 2015 6:49

**To:**

**Cc:**

**Subject:** Re: Carcinogenic assessment of glyphosate by IARC

Dear

We are working on the consolidated reference list for the glyphosate assessment and hope to send it to you this week.

Regards

IARC/WHO  
150, cours Albert Thomas  
69372 Lyon cedex 08, France  
Tel: +33 (0)4 72

---

**From:**  
**Date:** Monday, 20 April 2015 16:38

**To:**  
**Cc:**

**Subject:** RE: Carcinogenic assessment of glyphosate by IARC

Dear colleagues,

I would like to send you a kind reminder whether you would agree to provide to EFSA your list of references for glyphosate as we are now in the process of drafting the conclusion on the glyphosate peer review.

Thanking you in advance for your collaboration.

Best regards,

---

**From:**  
**Sent:** 27 March 2015 11:08  
**To:**  
**Cc:**  
**Subject:** RE: Carcinogenic assessment of glyphosate by IARC

Dear

Thank you for your quick answer. Indeed the glyphosate assessment is of high importance to public health. As we will draft the EFSA conclusion on glyphosate shortly, we would be grateful if you could provide us with your list of references to ensure that we do not miss relevant data. Kindly further inform us whether you would agree that we share this list with Member States participating to the peer review.

Best regards,

---

**From:**  
**Sent:** 26 March 2015 16:48  
**To:**

### **Glyphosate references considered by the IARC Monographs Volume 112 Working Group**

- Abarikwu SO, Akiri OF, Durojaiye MA, Adenike A (2015). Combined effects of repeated administration of Bretmont Wipeout (glyphosate) and Ultrazin (atrazine) on testosterone, oxidative stress and sperm quality of Wistar rats. *Toxicol Mech Methods*. 25(1): 70-80.
- Abhilash PC and Singh N (2009). Pesticide use and application: an Indian scenario. *J Hazard Mater*. 165(1-3): 1-12.
- Abraxis (2005) *Glyphosate Plate*. Kit Part # 500086 Warminster, PA Abraxis, LLC. Available at: [http://www.abraxiskits.com/uploads/products/docfiles/184\\_PN500086USER.pdf](http://www.abraxiskits.com/uploads/products/docfiles/184_PN500086USER.pdf)
- Acquavella JF, Alexander BH, Mandel JS, Gustin C, Baker B, Chapman P, *et al.* (2004). Glyphosate biomonitoring for farmers and their families: results from the Farm Family Exposure Study. *Environ Health Perspect*. 112(3): 321-326.
- Adam A, Marzuki A, Abdul Rahman H, Abdul Aziz M (1997). The oral and intratracheal toxicities of ROUNDUP and its components to rats. *Vet Hum Toxicol*. 39(3): 147-151.
- Ahsan N, Lee DG, Lee KW, Alam I, Lee SH, Bahk JD, *et al.* (2008). Glyphosate-induced oxidative stress in rice leaves revealed by proteomic approach. *Plant Physiol Biochem*. 46(12): 1062-1070.
- Akcha F, Spagnol C, Rouxel J (2012). Genotoxicity of diuron and glyphosate in oyster spermatozoa and embryos. *Aquat Toxicol*. 106-107 104-113.
- Alavanja MC, Sandler DP, McMaster SB, Zahm SH, McDonnell CJ, Lynch CF, *et al.* (1996). The Agricultural Health Study. *Environ Health Perspect*. 104(4): 362-369.
- Alavanja MC, Samanic C, Dosemeci M, Lubin J, Tarone R, Lynch CF, *et al.* (2003). Use of agricultural pesticides and prostate cancer risk in the Agricultural Health Study cohort. *Am J Epidemiol*. 157(9): 800-814.
- Albrechtsen HJ, Mills MS, Aamand J, Bjerg PL (2001). Degradation of herbicides in shallow Danish aquifers: an integrated laboratory and field study. *Pest Manag Sci*. 57(4): 341-350.
- Alvarez-Moya C, Silva MR, Arambula AR, Sandoval AI, Vasquez HC, Gonzalez Montes RM (2011). Evaluation of genetic damage induced by glyphosate isopropylamine salt using *Tradescantia* bioassays. *Genet Mol Biol*. 34(1): 127-130.
- Alvarez-Moya C, Silva MR, Ramirez CV, Gallardo DG, Sanchez RL, Aguirre AC, *et al.* (2014). Comparison of the in vivo and in vitro genotoxicity of glyphosate isopropylamine salt in three different organisms. *Genet Mol Biol*. 37(1): 105-110.
- Anadon A, Martinez-Larranaga MR, Martinez MA, Castellano VJ, Martinez M, Martin MT, *et al.* (2009). Toxicokinetics of glyphosate and its metabolite aminomethyl phosphonic acid in rats. *Toxicol Lett*. 190(1): 91-95.

- Andreotti G, Freeman LE, Hou L, Coble J, Rusiecki J, Hoppin JA, *et al.* (2009). Agricultural pesticide use and pancreatic cancer risk in the Agricultural Health Study Cohort. *Int J Cancer*. 124(10): 2495-2500.
- Appenzeller LM, Munley SM, Hoban D, Sykes GP, Malley LA, Delaney B (2008). Subchronic feeding study of herbicide-tolerant soybean DP-356O43-5 in Sprague-Dawley rats. *Food Chem Toxicol*. 46(6): 2201-2213.
- Appenzeller LM, Munley SM, Hoban D, Sykes GP, Malley LA, Delaney B (2009). Subchronic feeding study of grain from herbicide-tolerant maize DP-O9814O-6 in Sprague-Dawley rats. *Food Chem Toxicol*. 47(9): 2269-2280.
- Aris A and Leblanc S (2011). Maternal and fetal exposure to pesticides associated to genetically modified foods in Eastern Townships of Quebec, Canada. *Reprod Toxicol*. 31(4): 528-533.
- Arjó G, Portero M, Pinol C, Vinas J, Matias-Guiu X, Capell T, *et al.* (2013). Plurality of opinion, scientific discourse and pseudoscience: an in depth analysis of the Seralini *et al.* study claiming that Roundup Ready corn or the herbicide Roundup cause cancer in rats. *Transgenic Res*. 22(2): 255-267.
- Astiz M, de Alaniz MJ, Marra CA (2009). Effect of pesticides on cell survival in liver and brain rat tissues. *Ecotoxicol Environ Saf*. 72(7): 2025-2032.
- Astiz M, de Alaniz MJ, Marra CA (2009). Antioxidant defense system in rats simultaneously intoxicated with agrochemicals. *Environ Toxicol Pharmacol*. 28(3): 465-473.
- Astiz M, de Alaniz MJ, Marra CA (2012). The oxidative damage and inflammation caused by pesticides are reverted by lipoic acid in rat brain. *Neurochem Int*. 61(7): 1231-1241.
- Astiz M, Hurtado de Catalfo GE, Garcia MN, Galletti SM, Errecalde AL, de Alaniz MJ, *et al.* (2013). Pesticide-induced decrease in rat testicular steroidogenesis is differentially prevented by lipoate and tocopherol. *Ecotoxicol Environ Saf*. 91 129-138.
- Axelrad JC, Howard CV, McLean WG (2003). The effects of acute pesticide exposure on neuroblastoma cells chronically exposed to diazinon. *Toxicology*. 185(1-2): 67-78.
- Baer KN and Marcel BJ (2014) Glyphosate. In: Wexler P (ed) *Encyclopedia of Toxicology (Third Edition)*. Oxford: Academic Press, 767-769.
- Band PR, Abanto Z, Bert J, Lang B, Fang R, Gallagher RP, *et al.* (2011). Prostate cancer risk and exposure to pesticides in British Columbia farmers. *Prostate*. 71(2): 168-183.
- Bara JJ, Montgomery A, Muturi EJ (2014). Sublethal effects of atrazine and glyphosate on life history traits of *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae). *Parasitol Res*. 113(8): 2879-2886.

- Battaglin WA, Kolpin DW, Scribner EA, Kuivila KM, Sandstrom MW (2005). Glyphosate, Other Herbicides, and Transformation Products in Midwestern Streams, 20021. JAWRA. 41(2): 323-332.
- Bellé R, Le BR, Morales J, Cosson B, Cormier P, Mulner-Lorillon O (2007). [Sea urchin embryo, DNA-damaged cell cycle checkpoint and the mechanisms initiating cancer development]. J Soc Biol. 201(3): 317-327.
- Benachour N, Sipahutar H, Moslemi S, Gasnier C, Travert C, Seralini GE (2007). Time- and dose-dependent effects of roundup on human embryonic and placental cells. Arch Environ Contam Toxicol. 53(1): 126-133.
- Benachour N and Seralini GE (2009). Glyphosate formulations induce apoptosis and necrosis in human umbilical, embryonic, and placental cells. Chem Res Toxicol. 22(1): 97-105.
- Benbrook C (2012). Impacts of genetically engineered crops on pesticide use in the U.S. -- the first sixteen years. Environmental Sciences Europe. 24(1): 24.
- Benedetti AL, Vituri CL, Trentin AG, Domingues MA, Alvarez-Silva M (2004). The effects of sub-chronic exposure of Wistar rats to the herbicide Glyphosate-Biocarb. Toxicol Lett. 153(2): 227-232.
- Bennett R, Phipps R, Strange A, Grey P (2004). Environmental and human health impacts of growing genetically modified herbicide-tolerant sugar beet: a life-cycle assessment. Plant Biotechnol J. 2(4): 273-278.
- Bergson Goncalves De Abreu A, De Rizzo Da Matta MH, Montagner E (2008). Development and validation of a method for determination of glyphosate in soybean grains. Quim Nova. 31 5-9.
- Berkman CE, Thompson CM, Perrin SR (1993). Synthesis, absolute configuration, and analysis of malathion, malaoxon, and isomalathion enantiomers. Chem Res Toxicol. 6(5): 718-723.
- Bernal J, Bernal JL, Martin MT, Nozal MJ, Anadon A, Martinez-Larranaga MR, *et al.* (2010). Development and validation of a liquid chromatography-fluorescence-mass spectrometry method to measure glyphosate and aminomethylphosphonic acid in rat plasma. J Chromatogr B Analyt Technol Biomed Life Sci. 878(31): 3290-3296.
- Bertheussen K, Yousef MI, Figenschau Y (1997). A new sensitive cell culture test for the assessment of pesticide toxicity. J Environ Sci Health B. 32(2): 195-211.
- Blair A, Thomas K, Coble J, Sandler DP, Hines CJ, Lynch CF, *et al.* (2011). Impact of pesticide exposure misclassification on estimates of relative risks in the Agricultural Health Study. Occup Environ Med. 68(7): 537-541.
- Blakley BR (1997). Effect of roundup and tordon 202C herbicides on antibody production in mice. Vet Hum Toxicol. 39(4): 204-206.

- Bo Nielsen J, Ahm Sorensen J, Nielsen F (2009). The usual suspects-influence of physicochemical properties on lag time, skin deposition, and percutaneous penetration of nine model compounds. *J Toxicol Environ Health A*. 72(5): 315-323.
- Bolognesi C, Bonatti S, Degan P, Gallerani E, Peluso M, Rabboni R, *et al.* (1997). Genotoxic activity of glyphosate and its technical formulation roundup. *J Agric Food Chem*. 45((5)): 1957-1962.
- Bolognesi C, Carrasquilla G, Volpi S, Solomon KR, Marshall EJ (2009). Biomonitoring of genotoxic risk in agricultural workers from five colombian regions: association to occupational exposure to glyphosate. *J Toxicol Environ Health A*. 72(15-16): 986-997.
- Borggaard OK and Gimsing AL (2008). Fate of glyphosate in soil and the possibility of leaching to ground and surface waters: a review. *Pest Manag Sci*. 64(4): 441-456.
- Botero-Coy AM, Ibanez M, Sancho JV, Hernandez F (2013). Improvements in the analytical methodology for the residue determination of the herbicide glyphosate in soils by liquid chromatography coupled to mass spectrometry. *J Chromatogr A*. 1292 132-141.
- Botero-Coy AM, Ibanez M, Sancho JV, Hernandez F (2013). Direct liquid chromatography-tandem mass spectrometry determination of underivatized glyphosate in rice, maize and soybean. *J Chromatogr A*. 1313 157-165.
- Bradberry SM, Proudfoot AT, Vale JA (2004). Glyphosate poisoning. *Toxicol Rev*. 23(3): 159-167.
- Brewster DW, Warren J, Hopkins WE (1991). Metabolism of glyphosate in Sprague-Dawley rats: tissue distribution, identification, and quantitation of glyphosate-derived materials following a single oral dose. *Fundam Appl Toxicol*. 17(1): 43-51.
- Brodeur JC, Poliserpi MB, D'Andrea MF, Sanchez M (2014). Synergy between glyphosate- and cypermethrin-based pesticides during acute exposures in tadpoles of the common South American toad *Rhinella arenarum*. *Chemosphere*. 112 70-76.
- Brown LM, Blair A, Gibson R, Everett GD, Cantor KP, Schuman LM, *et al.* (1990). Pesticide exposures and other agricultural risk factors for leukemia among men in Iowa and Minnesota. *Cancer Res*. 50(20): 6585-6591.
- Brown LM, Burmeister LF, Everett GD, Blair A (1993). Pesticide exposures and multiple myeloma in Iowa men. *Cancer Causes Control*. 4(2): 153-156.
- Brüch W, Rosenborg AE, Johler RK, *et al.* (2013) *The Danish pesticide leaching assessment programme. Monitoring results 1999-2012*, Brüch W, Rosenborg AE, Johler RK, *et al.*. Available at: [http://pesticidvarsling.dk/publ\\_result/index.html](http://pesticidvarsling.dk/publ_result/index.html)
- Byer JD, Struger J, Klawunn P, Todd A, Sverko E (2008). Low cost monitoring of glyphosate in surface waters using the ELISA method: an evaluation. *Environ Sci Technol*. 42(16): 6052-6057.



- Campbell JL, Smith MA, Eiteman MA, Williams PL, Boeniger MF (2000). Comparison of solvents for removing pesticides from skin using an in vitro porcine model. *AIHAJ.* 61(1): 82-88.
- Cantor KP, Blair A, Everett G, Gibson R, Burmeister LF, Brown LM, *et al.* (1992). Pesticides and other agricultural risk factors for non-Hodgkin's lymphoma among men in Iowa and Minnesota. *Cancer Res.* 52(9): 2447-2455.
- Cao Z, Mou R, Chen M (2010). [Determination of glyphosate and aminomethylphosphonic acid in rice using liquid chromatography-tandem mass spectrometry]. *Se Pu.* 28(8): 743-748.
- Carrasco AE (2011). Reply to the letter to the editor regarding our article (paganelli et Al, 2010). *Chem Res Toxicol.* 24(5): 610-613.
- Carreón T, Butler MA, Ruder AM, Waters MA, Davis-King KE, Calvert GM, *et al.* (2005). Gliomas and farm pesticide exposure in women: the Upper Midwest Health Study. *Environ Health Perspect.* 113(5): 546-551.
- Cassault-Meyer E, Gress S, Seralini GE, Galeraud-Denis I (2014). An acute exposure to glyphosate-based herbicide alters aromatase levels in testis and sperm nuclear quality. *Environ Toxicol Pharmacol.* 38(1): 131-140.
- Cattaneo R, Clasen B, Loro VL, de Menezes CC, Pretto A, Baldisserotto B, *et al.* (2011). Toxicological responses of *Cyprinus carpio* exposed to a commercial formulation containing glyphosate. *Bull Environ Contam Toxicol.* 87(6): 597-602.
- Cattani D, de Liz Oliveira Cavalli VL, Heinz Rieg CE, Domingues JT, Dal-Cim T, Tasca CI, *et al.* (2014). Mechanisms underlying the neurotoxicity induced by glyphosate-based herbicide in immature rat hippocampus: involvement of glutamate excitotoxicity. *Toxicology.* 320 34-45.
- Cavalcante DG, Martinez CB, Sofia SH (2008). Genotoxic effects of Roundup on the fish *Prochilodus lineatus*. *Mutat Res.* 655(1-2): 41-46.
- Cavas T and Konen S (2007). Detection of cytogenetic and DNA damage in peripheral erythrocytes of goldfish (*Carassius auratus*) exposed to a glyphosate formulation using the micronucleus test and the comet assay. *Mutagenesis.* 22(4): 263-268.
- Cavusoglu K, Yapar K, Oruc E, Yalcin E (2011). Protective effect of Ginkgo biloba L. leaf extract against glyphosate toxicity in Swiss albino mice. *J Med Food.* 14(10): 1263-1272.
- CCM International (2011) *Outlook for China Glyphosate Industry 2012-2016*, CCM International. Available at: [http://www.researchandmarkets.com/reports/2101356/outlook\\_for\\_china\\_glyphosate\\_industry\\_20122016](http://www.researchandmarkets.com/reports/2101356/outlook_for_china_glyphosate_industry_20122016)

- Centre de Toxicologie du Quebec (1988) *Etude de L'exposition professionnelle des travailleurs forestiers exposed au glyphosate*, Centre de Toxicologie du Quebec. Available at: <http://www.santecom.qc.ca/Bibliothequevirtuelle/santecom/35567000039898.pdf>
- Chan P and Mahler J (1992). NTP technical report on the toxicity studies of Glyphosate (CAS No. 1071-83-6) Administered In Dosed Feed To F344/N Rats And B6C3F1 Mice. Toxic Rep Ser. 16 1-D3.
- Chang CB and Chang CC (2009). Refractory cardiopulmonary failure after glyphosate surfactant intoxication: a case report. *J Occup Med Toxicol.* 4 2.
- Chang FC, Simcik MF, Capel PD (2011). Occurrence and fate of the herbicide glyphosate and its degradate aminomethylphosphonic acid in the atmosphere. *Environ Toxicol Chem.* 30(3): 548-555.
- Chaufan G, Coalova I, Rios de Molina MC (2014). Glyphosate commercial formulation causes cytotoxicity, oxidative effects, and apoptosis on human cells: differences with its active ingredient. *Int J Toxicol.* 33(1): 29-38.
- Chen L, Xie M, Bi Y, Wang G, Deng S, Liu Y (2012). The combined effects of UV-B radiation and herbicides on photosynthesis, antioxidant enzymes and DNA damage in two bloom-forming cyanobacteria. *Ecotoxicol Environ Saf.* 80 224-230.
- Chen MX, Cao ZY, Jiang Y, Zhu ZW (2013). Direct determination of glyphosate and its major metabolite, aminomethylphosphonic acid, in fruits and vegetables by mixed-mode hydrophilic interaction/weak anion-exchange liquid chromatography coupled with electrospray tandem mass spectrometry. *J Chromatogr A.* 1272 90-99.
- Cherry N, Mackness M, Mackness B, Dippnall M, Povey A (2011). 'Dippers' flu' and its relationship to PON1 polymorphisms. *Occup Environ Med.* 68(3): 211-217.
- Chruscielska K, Brzezinski J, Kita K, Kalhorn D, Kita I, Graffstein B, *et al.* (2000). Glyphosate - Evaluation of chronic activity and possible far-reaching effects. Part I. Studies on chronic toxicity. *Pestycydy (Warsaw).* 3-4 11-20.
- Clair E, Mesnage R, Travert C, Seralini GE (2012). A glyphosate-based herbicide induces necrosis and apoptosis in mature rat testicular cells in vitro, and testosterone decrease at lower levels. *Toxicol In Vitro.* 26(2): 269-279.
- Clements C, Ralph S, Petras M (1997). Genotoxicity of select herbicides in *Rana catesbeiana* tadpoles using the alkaline single-cell gel DNA electrophoresis (comet) assay. *Environ Mol Mutagen.* 29(3): 277-288.
- Coalova I, Rios de Molina MC, Chaufan G (2014). Influence of the spray adjuvant on the toxicity effects of a glyphosate formulation. *Toxicol In Vitro.* 28(7): 1306-1311.

- Cocco P, Satta G, Dubois S, Pili C, Pilleri M, Zucca M, *et al.* (2013). Lymphoma risk and occupational exposure to pesticides: results of the Epilymph study. *Occup Environ Med.* 70(2): 91-98.
- Connors DE and Black MC (2004). Evaluation of lethality and genotoxicity in the freshwater mussel *Utterbackia imbecillis* (Bivalvia: Unionidae) exposed singly and in combination to chemicals used in lawn care. *Arch Environ Contam Toxicol.* 46(3): 362-371.
- Contardo-Jara V, Klingelmann E, Wiegand C (2009). Bioaccumulation of glyphosate and its formulation Roundup Ultra in *Lumbriculus variegatus* and its effects on biotransformation and antioxidant enzymes. *Environ Pollut.* 157(1): 57-63.
- Correia FV and Moreira JC (2010). Effects of glyphosate and 2,4-D on earthworms (*Eisenia foetida*) in laboratory tests. *Bull Environ Contam Toxicol.* 85(3): 264-268.
- Corsini E, Sokooti M, Galli CL, Moretto A, Colosio C (2013). Pesticide induced immunotoxicity in humans: a comprehensive review of the existing evidence. *Toxicology.* 307 123-135.
- Costa MJ, Monteiro DA, Oliveira-Neto AL, Rantin FT, Kalinin AL (2008). Oxidative stress biomarkers and heart function in bullfrog tadpoles exposed to Roundup Original. *Ecotoxicology.* 17(3): 153-163.
- CRI (China Research & Intelligence) (2013) *Research Report on Global and China Glyphosate Industry, 2013-2017*. Available at: [http://www.researchandmarkets.com/reports/2567069/research\\_report\\_on\\_global\\_and\\_china\\_glyphosate](http://www.researchandmarkets.com/reports/2567069/research_report_on_global_and_china_glyphosate)
- Culbreth ME, Harrill JA, Freudenrich TM, Mundy WR, Shafer TJ (2012). Comparison of chemical-induced changes in proliferation and apoptosis in human and mouse neuroprogenitor cells. *Neurotoxicology.* 33(6): 1499-1510.
- Curwin BD, Hein MJ, Sanderson WT, Nishioka MG, Reynolds SJ, Ward EM, *et al.* (2005). Pesticide contamination inside farm and nonfarm homes. *J Occup Environ Hyg.* 2(7): 357-367.
- Curwin BD, Hein MJ, Sanderson WT, Striley C, Heederik D, Kromhout H, *et al.* (2007). Urinary pesticide concentrations among children, mothers and fathers living in farm and non-farm households in Iowa. *Ann Occup Hyg.* 51(1): 53-65.
- Dallegrave E, Mantese FD, Coelho RS, Pereira JD, Dalsenter PR, Langeloh A (2003). The teratogenic potential of the herbicide glyphosate-Roundup in Wistar rats. *Toxicol Lett.* 142(1-2): 45-52.
- Dallegrave E, Mantese FD, Oliveira RT, Andrade AJ, Dalsenter PR, Langeloh A (2007). Pre- and postnatal toxicity of the commercial glyphosate formulation in Wistar rats. *Arch Toxicol.* 81(9): 665-673.

- de Castilhos Ghisi N. and Cestari MM (2013). Genotoxic effects of the herbicide Roundup((R)) in the fish *Corydoras paleatus* (Jenyns 1842) after short-term, environmentally low concentration exposure. *Environ Monit Assess.* 185(4): 3201-3207.
- de Liz Oliveira Cavalli VL, Cattani D, Heinz Rieg CE, Pierozan P, Zanatta L, Benedetti Parisotto E, *et al.* (2013). Roundup disrupts male reproductive functions by triggering calcium-mediated cell death in rat testis and Sertoli cells. *Free Radic Biol Med.* 65 335-346.
- De Marco A, De Simone C, Raglione M, Testa A, Trinca S (1992). Importance of the type of soil for the induction of micronuclei and the growth of primary roots of *Vicia faba* treated with the herbicides atrazine, glyphosate and maleic hydrazide. *Mutat Res.* 279(1): 9-13.
- de Menezes CC, da Fonseca MB, Loro VL, Santi A, Cattaneo R, Clasen B, *et al.* (2011). Roundup effects on oxidative stress parameters and recovery pattern of *Rhamdia quelen*. *Arch Environ Contam Toxicol.* 60(4): 665-671.
- De Roos AJ, Zahm SH, Cantor KP, Weisenburger DD, Holmes FF, Burmeister LF, *et al.* (2003). Integrative assessment of multiple pesticides as risk factors for non-Hodgkin's lymphoma among men. *Occup Environ Med.* 60(9): E11.
- De Roos AJ, Blair A, Rusiecki JA, Hoppin JA, Svec M, Dosemeci M, *et al.* (2005). Cancer incidence among glyphosate-exposed pesticide applicators in the Agricultural Health Study. *Environ Health Perspect.* 113(1): 49-54.
- De Roos AJ, Svec M, Blair A, Rusiecki JA, Dosemeci M, Alavanja MC, *et al.* (2005). Glyphosate Results Revisited: De Roos et al. Respond. *Environ Health Perspect.* 113(6): A366-A367.
- De Souza Filho J, Sousa CC, Da Silva CC, De Saboia-Morais SM, Grisolia CK (2013). Mutagenicity and genotoxicity in gill erythrocyte cells of *Poecilia reticulata* exposed to a glyphosate formulation. *Bull Environ Contam Toxicol.* 91(5): 583-587.
- Dennis LK, Lynch CF, Sandler DP, Alavanja MC (2010). Pesticide use and cutaneous melanoma in pesticide applicators in the agricultural health study. *Environ Health Perspect.* 118(6): 812-817.
- Dickson SJ, Meinhold RH, Beer ID, Koelmeyer TD (1988). Rapid determination of glyphosate in postmortem specimens using <sup>31</sup>P NMR. *J Anal Toxicol.* 12(5): 284-286.
- Dill GM (2005). Glyphosate-resistant crops: history, status and future. *Pest Manag Sci.* 61(3): 219-224.
- Dill GM, Sammons RD, Feng PCC, *et al.* (2010) Glyphosate: discovery, development, applications, and properties. In: Nandula VK (ed) *Glyphosate Resistance in Crops and Weeds: History, Development, and Management*. Hoboken, NJ: USA: Wiley, 1-33.

- Dimitrov BD, Gadeva PG, Benova DK, Bineva MV (2006). Comparative genotoxicity of the herbicides Roundup, Stomp and Reglone in plant and mammalian test systems. *Mutagenesis*. 21(6): 375-382.
- Dinehart SK, Smith LM, McMurry ST, Smith PN, Anderson TA, Haukos DA (2010). Acute and chronic toxicity of Roundup Weathermax and Ignite 280 SL to larval *Spea multiplicata* and *S. bombifrons* from the Southern High Plains, USA. *Environ Pollut*. 158(8): 2610-2617.
- dos Santos KC and Martinez CB (2014). Genotoxic and biochemical effects of atrazine and Roundup((R)), alone and in combination, on the Asian clam *Corbicula fluminea*. *Ecotoxicol Environ Saf*. 100 7-14.
- Dosemeci M, Alavanja MC, Rowland AS, Mage D, Zahm SH, Rothman N, *et al.* (2002). A quantitative approach for estimating exposure to pesticides in the Agricultural Health Study. *Ann Occup Hyg*. 46(2): 245-260.
- Duke SO and Powles SB (2009). Glyphosate-Resistant Crops and Weeds: Now and in the Future. *AgBioForum*. 12(3-4): 346-357.
- el-Gendy KS, Aly NM, el-Sebae AH (1998). Effects of edifenphos and glyphosate on the immune response and protein biosynthesis of boliti fish (*Tilapia nilotica*). *J Environ Sci Health B*. 33(2): 135-149.
- El-Shenawy NS (2009). Oxidative stress responses of rats exposed to Roundup and its active ingredient glyphosate. *Environ Toxicol Pharmacol*. 28(3): 379-385.
- Elie-Caille C, Heu C, Guyon C, Nicod L (2010). Morphological damages of a glyphosate-treated human keratinocyte cell line revealed by a micro- to nanoscale microscopic investigation. *Cell Biol Toxicol*. 26(4): 331-339.
- Engel LS, Hill DA, Hoppin JA, Lubin JH, Lynch CF, Pierce J, *et al.* (2005). Pesticide use and breast cancer risk among farmers' wives in the agricultural health study. *Am J Epidemiol*. 161(2): 121-135.
- Eriksson M, Hardell L, Carlberg M, Akerman M (2008). Pesticide exposure as risk factor for non-Hodgkin lymphoma including histopathological subgroup analysis. *Int J Cancer*. 123(7): 1657-1663.
- European Food Safety Authority (2009) *2007 Annual Report on Pesticide Residues according to Article 32 of Regulation (EC) No 396/2005*, EFSA. Available at: <http://www.efsa.europa.eu/en/efsajournal/pub/305r.htm>
- European Union (1998) *Council Directive 98/83/EC on the quality of drinking water intended for human consumption*. Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31998L0083&from=EN>

Eustis SL, Hailey JR, Boorman GA, Haseman JK (1994). The utility of multiple-section sampling in the histopathological evaluation of the kidney for carcinogenicity studies. *Toxicol Pathol.* 22(5): 457-472.

Farm Chemicals International (2015) *Glyphosate. Retrieved from Crop Protection Database.* Available at: <http://www.farmchemicalsinternational.com/crop-protection-database/#/product/detail/203900/>

Farmer DR, Lash TL, Acquavella JF (2005). Glyphosate results revisited. *Environ Health Perspect.* 113(6): A365-A366.

Ferreira D, da Motta AC, Kreutz LC, Toni C, Loro VL, Barcellos LJ (2010). Assessment of oxidative stress in *Rhamdia quelen* exposed to agrichemicals. *Chemosphere.* 79(9): 914-921.

Figenschau Y, Yousef MI, Sveinbjornsson B, Bertheussen K (1997). A sensitive serum-free colorimetric assay for the detection of cytotoxic effects of pesticides. *J Environ Sci Health B.* 32(2): 177-194.

Flower KB, Hoppin JA, Lynch CF, Blair A, Knott C, Shore DL, *et al.* (2004). Cancer risk and parental pesticide application in children of Agricultural Health Study participants. *Environ Health Perspect.* 112(5): 631-635.

FOE Europe (2013) *Introducing Glyphosate, the world's biggest selling herbicide*, Available at: [http://www.foeeurope.org/sites/default/files/press\\_releases/foee\\_1\\_introducing\\_glyphosate.pdf](http://www.foeeurope.org/sites/default/files/press_releases/foee_1_introducing_glyphosate.pdf)

FOE Europe (2013) *Determination of Glyphosate residues in human urine samples from 18 European countries*, MLHB (Medical Laboratory Bremen). Available at: [https://www.europe.org/sites/default/files/glyphosate\\_studyresults\\_june12.pdf](https://www.europe.org/sites/default/files/glyphosate_studyresults_june12.pdf)

Food and Agriculture Organization of the United Nations (2000) Specifications and Evaluations For Plant Protection Products: GLYPHOSATE, N-(phosphonomethyl)glycine. 2000/2001. Available at: [http://www.fao.org/fileadmin/templates/agphome/documents/Pests\\_Pesticides/Specs/glypho01.pdf](http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Specs/glypho01.pdf)

Food and Agriculture Organization of the United Nations (2004) *Pesticides residues in food- 2004. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues Rome, Italy, 20-29 September 2004*, No. 178 Available at: [http://www.fao.org/fileadmin/templates/agphome/documents/Pests\\_Pesticides/JMPR/Reports\\_1991-2006/report2004jmpr.pdf](http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/JMPR/Reports_1991-2006/report2004jmpr.pdf)

Food and Agriculture Organization of the United Nations (2004) *Glyphosate. Pesticides residues in food 2004 Joint FAO/WHO Meeting on Pesticides Residues. Part II Toxicological*, 95-162 Available at: <http://www.inchem.org/documents/jmpr/jmpmono/v2004pr01.pdf>

- Forgacs AL, Ding Q, Jaremba RG, Huhtaniemi IT, Rahman NA, Zacharewski TR (2012). BLTK1 murine Leydig cells: a novel steroidogenic model for evaluating the effects of reproductive and developmental toxicants. *Toxicol Sci.* 127(2): 391-402.
- Freedonia Group (2012) *World Agricultural Pesticides: Industry Study with Forecasts for 2016 & 2021*, No. Study #2902, August 2012 1-458 Available at: <http://www.freedoniagroup.com/brochure/29xx/2902smwe.pdf>
- Frescura VD, Kuhn AW, Laughinghouse HD, Paranhos JT, Tedesco SB (2013). Post-treatment with plant extracts used in Brazilian folk medicine caused a partial reversal of the antiproliferative effect of glyphosate in the *Allium cepa* test. *Biocell.* 37(2): 23-28.
- Garlich FM, Goldman M, Pepe J, Nelson LS, Allan MJ, Goldstein DA, *et al.* (2014). Hemodialysis clearance of glyphosate following a life-threatening ingestion of glyphosate-surfactant herbicide. *Clin Toxicol (Phila).* 52(1): 66-71.
- Gasnier C, Dumont C, Benachour N, Clair E, Chagnon MC, Seralini GE (2009). Glyphosate-based herbicides are toxic and endocrine disruptors in human cell lines. *Toxicology.* 262(3): 184-191.
- Gasnier C, Benachour N, Clair E, Travert C, Langlois F, Laurant C, *et al.* (2010). Dig1 protects against cell death provoked by glyphosate-based herbicides in human liver cell lines. *J Occup Med Toxicol.* 5 29.
- Gehin A, Guillaume YC, Millet J, Guyon C, Nicod L (2005). Vitamins C and E reverse effect of herbicide-induced toxicity on human epidermal cells HaCaT: a biochemometric approach. *Int J Pharm.* 288(2): 219-226.
- George J, Prasad S, Mahmood Z, Shukla Y (2010). Studies on glyphosate-induced carcinogenicity in mouse skin: a proteomic approach. *J Proteomics.* 73(5): 951-964.
- George J and Shukla Y (2013). Emptying of Intracellular Calcium Pool and Oxidative Stress Imbalance Are Associated with the Glyphosate-Induced Proliferation in Human Skin Keratinocytes HaCaT Cells. *ISRN Dermatol.* 2013 825180.
- Geret F, Burgeot T, Haure J, Gagnaire B, Renault T, Communal PY, *et al.* (2013). Effects of low-dose exposure to pesticide mixture on physiological responses of the Pacific oyster, *Crassostrea gigas*. *Environ Toxicol.* 28(12): 689-699.
- Ghanizadeh H, Harrington KC, James TK, Woolley DJ, Ellison NW (2014). Mechanisms of glyphosate resistance in two perennial ryegrass (*Lolium perenne*) populations. *Pest Manag Sci.* doi: 10.1002/ps.3968. [Epub ahead of print]
- Gholami-Seyedkolaei SJ, Mirvaghefi A, Farahmand H, Kosari AA, Gholami-Seyedkolaei SJ, Gholami-Seyedkolaei SJ (2013). Optimization of recovery patterns in common carp exposed to roundup using response surface methodology: evaluation of neurotoxicity and genotoxicity effects and biochemical parameters. *Ecotoxicol Environ Saf.* 98 152-161.

- Giesy JP, Dobson S, Solomon KR (2000). Ecotoxicological risk assessment for Roundup herbicide. *Rev Environ Contam Toxicol.* 167 35-120.
- Gluszczak L, Loro VL, Pretto A, Moraes BS, Raabe A, Duarte MF, *et al.* (2011). Acute exposure to glyphosate herbicide affects oxidative parameters in piava (*Leporinus obtusidens*). *Arch Environ Contam Toxicol.* 61(4): 624-630.
- Gomes MP, Smedbol E, Chalifour A, Henault-Ethier L, Labrecque M, Lepage L, *et al.* (2014). Alteration of plant physiology by glyphosate and its by-product aminomethylphosphonic acid: an overview. *J Exp Bot.* 65(17): 4691-4703.
- Gout E, Bligny R, Genix P, Tissut M, Douce R (1992). Effect of glyphosate on plant cell metabolism. <sup>31</sup>P and <sup>13</sup>C NMR studies. *Biochimie.* 74(9-10): 875-882.
- Granby K and Vahl M (2001). Investigation of the herbicide glyphosate and the plant growth regulators chlormequat and mepiquat in cereals produced in Denmark. *Food Addit Contam.* 18(10): 898-905.
- Greim H, Saltmiras D, Mostert V, Strupp C (2015). Evaluation of carcinogenic potential of the herbicide glyphosate, drawing on tumor incidence data from fourteen chronic/carcinogenicity rodent studies. *Crit Rev Toxicol.* 45(3): 185-208.
- Gress S, Lemoine S, Puddu PE, Seralini GE, Rouet R (2014). Cardiotoxic Electrophysiological Effects of the Herbicide Roundup in Rat and Rabbit Ventricular Myocardium In Vitro. *Cardiovasc Toxicol.* [Epub ahead of print].
- Grisolia CK (2002). A comparison between mouse and fish micronucleus test using cyclophosphamide, mitomycin C and various pesticides. *Mutat Res.* 518(2): 145-150.
- Guha N, Ward MH, Gunier R, Colt JS, Lea CS, Buffler PA, *et al.* (2013). Characterization of residential pesticide use and chemical formulations through self-report and household inventory: the Northern California Childhood Leukemia study. *Environ Health Perspect.* 121(2): 276-282.
- Gui YX, Fan XN, Wang HM, Wang G, Chen SD (2012). Glyphosate induced cell death through apoptotic and autophagic mechanisms. *Neurotoxicol Teratol.* 34(3): 344-349.
- Guilherme S, Gaivao I, Santos MA, Pacheco M (2010). European eel (*Anguilla anguilla*) genotoxic and pro-oxidant responses following short-term exposure to Roundup--a glyphosate-based herbicide. *Mutagenesis.* 25(5): 523-530.
- Guilherme S, Santos MA, Barroso C, Gaivao I, Pacheco M (2012). Differential genotoxicity of Roundup((R)) formulation and its constituents in blood cells of fish (*Anguilla anguilla*): considerations on chemical interactions and DNA damaging mechanisms. *Ecotoxicology.* 21(5): 1381-1390.



- Guilherme S, Gaivao I, Santos MA, Pacheco M (2012). DNA damage in fish (*Anguilla anguilla*) exposed to a glyphosate-based herbicide -- elucidation of organ-specificity and the role of oxidative stress. *Mutat Res.* 743(1-2): 1-9.
- Guilherme S, Santos MA, Gaivao I, Pacheco M (2014). Are DNA-damaging effects induced by herbicide formulations (Roundup(R) and Garlon(R)) in fish transient and reversible upon cessation of exposure? *Aquat Toxicol.* 155 213-221.
- Guilherme S, Santos MA, Gaivao I, Pacheco M (2014). DNA and chromosomal damage induced in fish (*Anguilla anguilla* L.) by aminomethylphosphonic acid (AMPA)--the major environmental breakdown product of glyphosate. *Environ Sci Pollut Res Int.* 21(14): 8730-8739.
- Hammond B, Dudek R, Lemen J, Nemeth M (2004). Results of a 13 week safety assurance study with rats fed grain from glyphosate tolerant corn. *Food Chem Toxicol.* 42(6): 1003-1014.
- Hardell L and Eriksson M (1999). A case-control study of non-Hodgkin lymphoma and exposure to pesticides. *Cancer.* 85(6): 1353-1360.
- Hardell L, Eriksson M, Nordstrom M (2002). Exposure to pesticides as risk factor for non-Hodgkin's lymphoma and hairy cell leukemia: pooled analysis of two Swedish case-control studies. *Leuk Lymphoma.* 43(5): 1043-1049.
- Hayes WJJ, Laws ERJe (1991) *Handbook of Pesticide Toxicology: Classes of Pesticides*. Volume 3 New York: Academic Press.
- Henderson AM, Gervais JA, Luukinen B, *et al.* (2010) Glyphosate Technical Fact Sheet; National Pesticide Information Center, Oregon State University Extension Services. Available from: <http://npic.orst.edu/factsheets/glyphotech.pdf>
- Heu C, Elie-Caille C, Mougey V, Launay S, Nicod L (2012). A step further toward glyphosate-induced epidermal cell death: involvement of mitochondrial and oxidative mechanisms. *Environ Toxicol Pharmacol.* 34(2): 144-153.
- Heydens WF, Healy CE, Hotz KJ, Kier LD, Martens MA, Wilson AG, *et al.* (2008). Genotoxic potential of glyphosate formulations: mode-of-action investigations. *J Agric Food Chem.* 56(4): 1517-1523.
- Hidalgo C, Rios C, Hidalgo M, Salvado V, Sancho JV, Hernandez F (2004). Improved coupled-column liquid chromatographic method for the determination of glyphosate and aminomethylphosphonic acid residues in environmental waters. *J Chromatogr A.* 1035(1): 153-157.
- Hietanen E, Linnainmaa K, Vainio H (1983). Effects of phenoxyherbicides and glyphosate on the hepatic and intestinal biotransformation activities in the rat. *Acta Pharmacol Toxicol (Copenh).* 53(2): 103-112.

- Hilton CW (2012) *Monsanto & the Global Glyphosate Market: Case Study*, The Wiglaf Journal  
Hilton CW Available at:  
<http://www.wiglafjournal.com/pricing/2012/06/monsanto-the-global-glyphosate-market-case-study/>
- Hoar SK, Blair A, Holmes FF, Boysen CD, Robel RJ, Hoover R, *et al.* (1986). Agricultural herbicide use and risk of lymphoma and soft-tissue sarcoma. *JAMA*. 256(9): 1141-1147.
- Hohenadel K, Harris SA, McLaughlin JR, Spinelli JJ, Pahwa P, Dosman JA, *et al.* (2011). Exposure to multiple pesticides and risk of non-Hodgkin lymphoma in men from six Canadian provinces. *Int J Environ Res Public Health*. 8(6): 2320-2330.
- Hokanson R, Fudge R, Chowdhary R, Busbee D (2007). Alteration of estrogen-regulated gene expression in human cells induced by the agricultural and horticultural herbicide glyphosate. *Hum Exp Toxicol*. 26(9): 747-752.
- Hori Y, Fujisawa M, Shimada K, Hirose Y (2003). Determination of the herbicide glyphosate and its metabolite in biological specimens by gas chromatography-mass spectrometry. A case of poisoning by roundup herbicide. *J Anal Toxicol*. 27(3): 162-166.
- Howard PH (1991) *Handbook of Environmental Fate and Exposure Data: For Organic Chemicals*. CRC press
- Howd RA, Brown JP, Morry DW, Wang YY, Bankowska J, Budroe JD, *et al.* (2000). Development of California Public Health Goals (PHGs) for chemicals in drinking water. *J Appl Toxicol*. 20(5): 365-380.
- Howe CM, Berrill M, Pauli BD, Helbing CC, Werry K, Veldhoen N (2004). Toxicity of glyphosate-based pesticides to four North American frog species. *Environ Toxicol Chem*. 23(8): 1928-1938.
- Huang X, Pedersen T, Fischer M, White R, Young TM (2004). Herbicide runoff along highways. 2. Sorption control. *Environ Sci Technol*. 38(12): 3272-3278.
- Huang X, Pedersen T, Fischer M, White R, Young TM (2004). Herbicide runoff along highways. 1. Field observations. *Environ Sci Technol*. 38(12): 3263-3271.
- Humphries D, Byrtus G, Anderson AM (2005) *Atmospheric deposition, soils and surface waters*, Water Research User Group, Alberta Environment. Available at:  
<http://environment.gov.ab.ca/info/library/6444.pdf>
- International Programme on Chemical Safety (1994) *Glyphosate*, Environmental Health Criteria 159, WHO, Geneva. Available at: <http://www.inchem.org/documents/ehc/ehc/ehc159.htm>
- International Programme on Chemical Safety (1996) *WHO/FAO Data Sheets on Pesticides: Glyphosate. No. 91*, No. WHO/PCS/DS/96.91 Geneva, Food and Agriculture Organization, World Health Organization. Available at:  
[http://apps.who.int/iris/bitstream/10665/63290/1/WHO\\_PCS\\_DS\\_96.91.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/63290/1/WHO_PCS_DS_96.91.pdf?ua=1)

International Programme on Chemical Safety (2005) *International Chemical Safety Card (ICSC) of Glyphosate (ICSC 0160)*. Available at:  
<http://www.inchem.org/documents/icsc/icsc/eics0160.htm>

Jacob GS, Garbow JR, Hallas LE, Kimack NM, Kishore GM, Schaefer J (1988). Metabolism of glyphosate in *Pseudomonas* sp. strain LBr. *Appl Environ Microbiol.* 54(12): 2953-2958.

Jan MR, Shah J, Muhammad M, Ara B (2009). Glyphosate herbicide residue determination in samples of environmental importance using spectrophotometric method. *J Hazard Mater.* 169(1-3): 742-745.

Jasper R, Locatelli GO, Pilati C, Locatelli C (2012). Evaluation of biochemical, hematological and oxidative parameters in mice exposed to the herbicide glyphosate-Roundup((R)). *Interdiscip Toxicol.* 5(3): 133-140.

Jauhiainen A, Rasanen K, Sarantila R, Nuutinen J, Kangas J (1991). Occupational exposure of forest workers to glyphosate during brush saw spraying work. *Am Ind Hyg Assoc J.* 52(2): 61-64.

Jayasumana C, Gunatilake S, Senanayake P (2014). Glyphosate, hard water and nephrotoxic metals: are they the culprits behind the epidemic of chronic kidney disease of unknown etiology in Sri Lanka? *Int J Environ Res Public Health.* 11(2): 2125-2147.

Johnson PD, Rimmer DA, Garrod AN, Helps JE, Mawdsley C (2005). Operator exposure when applying amenity herbicides by all-terrain vehicles and controlled droplet applicators. *Ann Occup Hyg.* 49(1): 25-32.

Kachuri L, Demers PA, Blair A, Spinelli JJ, Pahwa M, McLaughlin JR, *et al.* (2013). Multiple pesticide exposures and the risk of multiple myeloma in Canadian men. *Int J Cancer.* 133(8): 1846-1858.

Kale PG, Petty BT, Jr, Walker S, Ford JB, Dehkordi N, Tarasia S, *et al.* (1995). Mutagenicity testing of nine herbicides and pesticides currently used in agriculture. *Environ Mol Mutagen.* 25(2): 148-153.

Karunanayake CP, Spinelli JJ, McLaughlin JR, Dosman JA, Pahwa P, McDuffie HH (2012). Hodgkin lymphoma and pesticides exposure in men: a Canadian case-control study. *J Agromedicine.* 17(1): 30-39.

Kaya B, Creus A, Yanikoglu A, Cabre O, Marcos R (2000). Use of the *Drosophila* wing spot test in the genotoxicity testing of different herbicides. *Environ Mol Mutagen.* 36(1): 40-46.

Kier LD and Kirkland DJ (2013). Review of genotoxicity studies of glyphosate and glyphosate-based formulations. *Crit Rev Toxicol.* 43(4): 283-315.

Kier LD (2015). Review of genotoxicity biomonitoring studies of glyphosate-based formulations. *Crit Rev Toxicol.* 45(3): 209-218.

- Kim YH, Hong JR, Gil HW, Song HY, Hong SY (2013). Mixtures of glyphosate and surfactant TN20 accelerate cell death via mitochondrial damage-induced apoptosis and necrosis. *Toxicol In Vitro*. 27(1): 191-197.
- Koller VJ, Furrhacker M, Nersesyan A, Misik M, Eisenbauer M, Knasmueller S (2012). Cytotoxic and DNA-damaging properties of glyphosate and Roundup in human-derived buccal epithelial cells. *Arch Toxicol*. 86(5): 805-813.
- Kolpin DW, Thurman EM, Lee EA, Meyer MT, Furlong ET, Glassmeyer ST (2006). Urban contributions of glyphosate and its degradate AMPA to streams in the United States. *Sci Total Environ*. 354(2-3): 191-197.
- Koutros S, Beane Freeman LE, Lubin JH, Heltshe SL, Andreotti G, Barry KH, *et al.* (2013). Risk of total and aggressive prostate cancer and pesticide use in the Agricultural Health Study. *Am J Epidemiol*. 177(1): 59-74.
- Kreutz LC, Gil Barcellos LJ, de F, V, de Oliveira ST, Anziliero D, Davi dos SE, *et al.* (2011). Altered hematological and immunological parameters in silver catfish (*Rhamdia quelen*) following short term exposure to sublethal concentration of glyphosate. *Fish Shellfish Immunol*. 30(1): 51-57.
- Kuang H, Wang L, Xu C (2011) Overview of Analytical Techniques for Herbicides in Foods, Herbicides, Theory and Applications. In: Prof. Marcelo Larramendy (Ed.) *Herbicides, theory and applications*. InTech, 239-280. Available at: <http://cdn.intechopen.com/pdfs-wm/13143.pdf>
- Kumar S, Khodoun M, Kettleson EM, McKnight C, Reponen T, Grinshpun SA, *et al.* (2014). Glyphosate-rich air samples induce IL-33, TSLP and generate IL-13 dependent airway inflammation. *Toxicology*. 325 42-51.
- Kwiatkowska M, Pawel J, Bukowska B (2013). [Glyphosate and its formulations--toxicity, occupational and environmental exposure]. *Med Pr*. 64(5): 717-729.
- Kwiatkowska M, Huras B, Bukowska B (2014). The effect of metabolites and impurities of glyphosate on human erythrocytes (in vitro). *Pestic Biochem Physiol*. 109 34-43.
- Lanctot C, Navarro-Martin L, Robertson C, Park B, Jackman P, Pauli BD, *et al.* (2014). Effects of glyphosate-based herbicides on survival, development, growth and sex ratios of wood frog (*Lithobates sylvaticus*) tadpoles. II: agriculturally relevant exposures to Roundup WeatherMax(R) and Vision(R) under laboratory conditions. *Aquat Toxicol*. 154 291-303.
- Landgren O, Kyle RA, Hoppin JA, Beane Freeman LE, Cerhan JR, Katzmann JA, *et al.* (2009). Pesticide exposure and risk of monoclonal gammopathy of undetermined significance in the Agricultural Health Study. *Blood*. 113(25): 6386-6391.
- Larsen K, Najle R, Lifschitz A, Mate ML, Lanusse C, Virkel GL (2014). Effects of Sublethal Exposure to a Glyphosate-Based Herbicide Formulation on Metabolic Activities of Different Xenobiotic-Metabolizing Enzymes in Rats. *Int J Toxicol*. 33(4): 307-318.

- Lash TL (2007). Bias analysis applied to Agricultural Health Study publications to estimate non-random sources of uncertainty. *J Occup Med Toxicol.* 2 15.
- Lavy TL, Cowell JE, Steinmetz JR, Massey JH (1992). Conifer seedling nursery worker exposure to glyphosate. *Arch Environ Contam Toxicol.* 22(1): 6-13.
- Lee WJ, Cantor KP, Berzofsky JA, Zahm SH, Blair A (2004). Non-Hodgkin's lymphoma among asthmatics exposed to pesticides. *Int J Cancer.* 111(2): 298-302.
- Lee WJ, Lijinsky W, Heineman EF, Markin RS, Weisenburger DD, Ward MH (2004). Agricultural pesticide use and adenocarcinomas of the stomach and oesophagus. *Occup Environ Med.* 61(9): 743-749.
- Lee WJ, Colt JS, Heineman EF, McComb R, Weisenburger DD, Lijinsky W, *et al.* (2005). Agricultural pesticide use and risk of glioma in Nebraska, United States. *Occup Environ Med.* 62(11): 786-792.
- Lee WJ, Sandler DP, Blair A, Samanic C, Cross AJ, Alavanja MC (2007). Pesticide use and colorectal cancer risk in the Agricultural Health Study. *Int J Cancer.* 121(2): 339-346.
- Levine SL, Han Z, Liu J, Farmer DR, Papadopoulos V (2007). Disrupting mitochondrial function with surfactants inhibits MA-10 Leydig cell steroidogenesis. *Cell Biol Toxicol.* 23(6): 385-400.
- Levine SL, Von MG, Minderhout T, Manson P, Sutton P (2015). Aminomethylphosphonic acid (AMPA) has low chronic toxicity to *Daphnia magna* and *Pimephales promelas*. *Environ Toxicol Chem.* doi: 10.1002/etc.2940. [Epub ahead of print]
- Li AP and Long TJ (1988). An evaluation of the genotoxic potential of glyphosate. *Fundam Appl Toxicol.* 10(3): 537-546.
- Li Q, Lambrechts MJ, Zhang Q, Liu S, Ge D, Yin R, *et al.* (2013). Glyphosate and AMPA inhibit cancer cell growth through inhibiting intracellular glycine synthesis. *Drug Des Devel Ther.* 7 635-643.
- Lima IS, Baumeier NC, Rosa RT, Campelo PM, Rosa EA (2014). Influence of glyphosate in planktonic and biofilm growth of *Pseudomonas aeruginosa*. *Braz J Microbiol.* 45(3): 971-975.
- Lin N and Garry VF (2000). In vitro studies of cellular and molecular developmental toxicity of adjuvants, herbicides, and fungicides commonly used in Red River Valley, Minnesota. *J Toxicol Environ Health A.* 60(6): 423-439.
- Lioi MB, Scarfi MR, Santoro A, Barbieri R, Zeni O, Di BD, *et al.* (1998). Genotoxicity and oxidative stress induced by pesticide exposure in bovine lymphocyte cultures in vitro. *Mutat Res.* 403(1-2): 13-20.

- Liu M, Hulting AG, Mallory-Smith CA (2014). Characterization of multiple-herbicide-resistant Italian ryegrass (*Lolium perenne* spp. *multiflorum*). *Pest Manag Sci.* 70(7): 1145-1150.
- Lopes FM, Varela Junior AS, Corcini CD, da Silva AC, Guazzelli VG, Tavares G, *et al.* (2014). Effect of glyphosate on the sperm quality of zebrafish *Danio rerio*. *Aquat Toxicol.* 155: 322-326.
- Lubick N (2009). Environmental impact of cocaine strategy assessed [News]. Studies measure effects of glyphosate-based herbicide on wildlife and human health. *Nature*. Available at: <http://www.nature.com/news/2009/091112/full/news.2009.1080.html>
- Lueken A, Juhl-Strauss U, Krieger G, Witte I (2004). Synergistic DNA damage by oxidative stress (induced by H<sub>2</sub>O<sub>2</sub>) and nongenotoxic environmental chemicals in human fibroblasts. *Toxicol Lett.* 147(1): 35-43.
- Lushchak OV, Kubrak OI, Storey JM, Storey KB, Lushchak VI (2009). Low toxic herbicide Roundup induces mild oxidative stress in goldfish tissues. *Chemosphere.* 76(7): 932-937.
- Mackness B, Durrington P, Povey A, Thomson S, Dippnall M, Mackness M, *et al.* (2003). Paraoxonase and susceptibility to organophosphorus poisoning in farmers dipping sheep. *Pharmacogenetics.* 13(2): 81-88.
- Malatesta M, Perdoni F, Santin G, Battistelli S, Muller S, Biggiogera M (2008). Hepatoma tissue culture (HTC) cells as a model for investigating the effects of low concentrations of herbicide on cell structure and function. *Toxicol In Vitro.* 22(8): 1853-1860.
- Mance D3 (2012) *The Great Glyphosate Debate*. [Online Magazine], Corinth VT (ed) Northern Woodlands Mance D3. Available at: <http://northernwoodlands.org/articles/article/the-great-glyphosate-debate>
- Mañas F, Peralta L, Raviolo J, Ovando HG, Weyers A, Ugnia L, *et al.* (2009). Genotoxicity of glyphosate assessed by the comet assay and cytogenetic tests. *Environ Toxicol Pharmacol.* 28(1): 37-41.
- Mañas F, Peralta L, Raviolo J, Garcia OH, Weyers A, Ugnia L, *et al.* (2009). Genotoxicity of AMPA, the environmental metabolite of glyphosate, assessed by the Comet assay and cytogenetic tests. *Ecotoxicol Environ Saf.* 72(3): 834-837.
- Marc J, Belle R, Morales J, Cormier P, Mulner-Lorillon O (2004). Formulated glyphosate activates the DNA-response checkpoint of the cell cycle leading to the prevention of G2/M transition. *Toxicol Sci.* 82(2): 436-442.
- Mariager TP, Madsen PV, Ebbehøj NE, Schmidt B, Juhl A (2013). Severe adverse effects related to dermal exposure to a glyphosate-surfactant herbicide. *Clin Toxicol (Phila).* 51(2): 111-113.
- Marques A, Guilherme S, Gaivao I, Santos MA, Pacheco M (2014). Progression of DNA damage induced by a glyphosate-based herbicide in fish (*Anguilla anguilla*) upon exposure

and post-exposure periods - Insights into the mechanisms of genotoxicity and DNA repair. *Comp Biochem Physiol C Toxicol Pharmacol.* 166 126-133.

Marques A, Guilherme S, Gaivao I, Santos MA, Pacheco M (2015). Erratum to: "Progression of DNA damage induced by a glyphosate-based herbicide in fish (*Anguilla anguilla*) upon exposure and post-exposure periods - Insights into the mechanisms of genotoxicity and DNA repair" [*Comp. Biochem. Physiol. C* 166 (2014) 126-133]. *Comp Biochem Physiol C Toxicol Pharmacol. Part C* 168 1.

Martinez A, Reyes I, Reyes N (2007). [Cytotoxicity of the herbicide glyphosate in human peripheral blood mononuclear cells]. *Biomedica.* 27(4): 594-604.

Martinez TT, Long WC, Hiller R (1990). Comparison of the toxicology of the herbicide roundup by oral and pulmonary routes of exposure. *Proc West Pharmacol Soc.* 33 193-197.

Martini CN, Gabrielli M, Vila MC (2012). A commercial formulation of glyphosate inhibits proliferation and differentiation to adipocytes and induces apoptosis in 3T3-L1 fibroblasts. *Toxicol In Vitro.* 26(6): 1007-1013.

Matamoros D and Vanrolleghem PA (2001). Pesticide assessment of the banana sector in an Ecuadorian watershed. *Meded Rijksuniv Gent Fak Landbouwkd Toegep Biol Wet.* 66(2b): 863-872.

McDuffie HH, Pahwa P, McLaughlin JR, Spinelli JJ, Fincham S, Dosman JA, *et al.* (2001). Non-Hodgkin's lymphoma and specific pesticide exposures in men: cross-Canada study of pesticides and health. *Cancer Epidemiol Biomarkers Prev.* 10(11): 1155-1163.

McQueen H, Callan AC, Hinwood AL (2012). Estimating maternal and prenatal exposure to glyphosate in the community setting. *Int J Hyg Environ Health.* 215(6): 570-576.

Meinking TL, Vicaria M, Eyerdam DH, Villar ME, Reyna S, Suarez G (2004). Efficacy of a reduced application time of Ovide lotion (0.5% malathion) compared to Nix creme rinse (1% permethrin) for the treatment of head lice. *Pediatr Dermatol.* 21(6): 670-674.

Mercurio P, Flores F, Mueller JF, Carter S, Negri AP (2014). Glyphosate persistence in seawater. *Mar Pollut Bull.* 85(2): 385-390.

Mesnage R, Bernay B, Seralini GE (2013). Ethoxylated adjuvants of glyphosate-based herbicides are active principles of human cell toxicity. *Toxicology.* 313(2-3): 122-128.

Meza-Joya FL, Ramirez-Pinilla MP, Fuentes-Lorenzo JL (2013). Toxic, cytotoxic, and genotoxic effects of a glyphosate formulation (Roundup(R)SL-Cosmoflux(R)411F) in the direct-developing frog *Eleutherodactylus johnstonei*. *Environ Mol Mutagen.* 54(5): 362-373.

Ministry of Chemical & Fertilizers, Department of Chemicals and Petrochemicals, Government of India (2008) *Performance of Chemical & Petrochemical Industry at a Glance (2001-2007)*. New Delhi. Available at: <http://chemicals.nic.in/stat0107.pdf>

- Mink PJ, Mandel JS, Lundin JI, Scurman BK (2011). Epidemiologic studies of glyphosate and non-cancer health outcomes: a review. *Regul Toxicol Pharmacol.* 61(2): 172-184.
- Mink PJ, Mandel JS, Scurman BK, Lundin JI (2012). Epidemiologic studies of glyphosate and cancer: a review. *Regul Toxicol Pharmacol.* 63(3): 440-452.
- Mladinic M, Berend S, Vrdoljak AL, Kopjar N, Radic B, Zeljezic D (2009). Evaluation of genome damage and its relation to oxidative stress induced by glyphosate in human lymphocytes in vitro. *Environ Mol Mutagen.* 50(9): 800-807.
- Mladinic M, Perkovic P, Zeljezic D (2009). Characterization of chromatin instabilities induced by glyphosate, terbuthylazine and carbofuran using cytome FISH assay. *Toxicol Lett.* 189(2): 130-137.
- Modesto KA and Martinez CB (2010). Effects of Roundup Transorb on fish: hematology, antioxidant defenses and acetylcholinesterase activity. *Chemosphere.* 81(6): 781-787.
- Modesto KA and Martinez CB (2010). Roundup causes oxidative stress in liver and inhibits acetylcholinesterase in muscle and brain of the fish *Prochilodus lineatus*. *Chemosphere.* 78(3): 294-299.
- Mohamed AH (2011). Sublethal toxicity of Roundup to immunological and molecular aspects of *Biomphalaria alexandrina* to *Schistosoma mansoni* infection. *Ecotoxicol Environ Saf.* 74(4): 754-760.
- Monge P, Wesseling C, Guardado J, Lundberg I, Ahlbom A, Cantor KP, *et al.* (2007). Parental occupational exposure to pesticides and the risk of childhood leukemia in Costa Rica. *Scand J Work Environ Health.* 33(4): 293-303.
- Monroy CM, Cortes AC, Sicard DM, de Restrepo HG (2005). [Cytotoxicity and genotoxicity of human cells exposed in vitro to glyphosate]. *Biomedica.* 25(3): 335-345.
- Monsanto (2011) *Technology Use Guide 2010*, Monsanto. Available at: [http://www.monsanto.com/documents/2010\\_technology\\_use\\_guide.pdf](http://www.monsanto.com/documents/2010_technology_use_guide.pdf)
- Monsanto India (2008) *Annual Report 2007-08*, Monsanto India. Available at: [http://www.monsantoindia.com/annualreports/2008/AnnualReport2007\\_08.pdf](http://www.monsantoindia.com/annualreports/2008/AnnualReport2007_08.pdf)
- Montgomery CA and Seely JC (1990) Kidney. In: Boorman BA, Eustis SL, Elwell MR, Montgomery CA MacKenzie WF (eds) *Pathology of Fischer Rat, References and Atlas*. San Diego(CA): Academic Press, 127-153. Available at: <http://www.ncbi.nlm.nih.gov/nlmcatalog/9002563>
- Moreno NC, Sofia SH, Martinez CB (2014). Genotoxic effects of the herbicide Roundup Transorb and its active ingredient glyphosate on the fish *Prochilodus lineatus*. *Environ Toxicol Pharmacol.* 37(1): 448-454.



- Morley WA and Seneff S (2014). Diminished brain resilience syndrome: A modern day neurological pathology of increased susceptibility to mild brain trauma, concussion, and downstream neurodegeneration. *Surg Neurol Int.* 5 97.
- Motojyuku M, Saito T, Akieda K, Otsuka H, Yamamoto I, Inokuchi S (2008). Determination of glyphosate, glyphosate metabolites, and glufosinate in human serum by gas chromatography-mass spectrometry. *J Chromatogr B Analyt Technol Biomed Life Sci.* 875(2): 509-514.
- Mottier A, Seguin A, Devos A, Pabic CL, Voiseux C, Lebel JM, *et al.* (2014). Effects of subchronic exposure to glyphosate in juvenile oysters (*Crassostrea gigas*): From molecular to individual levels. *Mar Pollut Bull.* doi: 10.1016/j.marpolbul.2014.10.026. [Epub ahead of print]
- Muangphra P, Kwankua W, Gooneratne R (2014). Genotoxic effects of glyphosate or paraquat on earthworm coelomocytes. *Environ Toxicol.* 29(6): 612-620.
- Mulet JM (2011). Letter to the editor regarding the article by paganelli *et al.* *Chem Res Toxicol.* 24(5): 609.
- Nakashima K, Yoshimura T, Mori H, Kawaguchi M, Adachi S, Nakao T, *et al.* (2002). [Effects of pesticides on cytokines production by human peripheral blood mononuclear cells--fenitrothion and glyphosate]. *Chudoku Kenkyu.* 15(2): 159-165.
- Navarro-Martin L, Lanctot C, Jackman P, Park BJ, Doe K, Pauli BD, *et al.* (2014). Effects of glyphosate-based herbicides on survival, development, growth and sex ratios of wood frogs (*Lithobates sylvaticus*) tadpoles. I: chronic laboratory exposures to VisionMax(R). *Aquat Toxicol.* 154 278-290.
- Navarro CD and Martinez CB (2014). Effects of the surfactant polyoxyethylene amine (POEA) on genotoxic, biochemical and physiological parameters of the freshwater teleost *Prochilodus lineatus*. *Comp Biochem Physiol C Toxicol Pharmacol.* 165 83-90.
- Naydenova E, Troev K, Topashka-Ancheva M, Hagele G, Ivanov I, Kril A (2007). Synthesis, cytotoxicity and clastogenicity of novel alpha-aminophosphonic acids. *Amino Acids.* 33(4): 695-702.
- Nedelkoska TV and Low GKC (2004). High-performance liquid chromatographic determination of glyphosate in water and plant material after pre-column derivatisation with 9-fluorenylmethyl chloroformate. *Anal Chim Acta.* 511(1): 145-153.
- Nielsen JB, Nielsen F, Sorensen JA (2007). Defense against dermal exposures is only skin deep: significantly increased penetration through slightly damaged skin. *Arch Dermatol Res.* 299(9): 423-431.
- NIOSH (2010) *NIOSH Pocket Guide to Chemical Hazards*, Publication No. 2010-168 U.S. Department of Health and Human Services. Available at:

<http://www.cdc.gov/niosh/npg/npgd0479.html>; <http://www.cdc.gov/niosh/npg/npgd0181.html>; <http://www.cdc.gov/niosh/npg/npgd0375.html>

Nordström M, Hardell L, Magnuson A, Hagberg H, Rask-Andersen A (1998). Occupational exposures, animal exposure and smoking as risk factors for hairy cell leukaemia evaluated in a case-control study. *Br J Cancer*. 77(11): 2048-2052.

NPIC (National Pesticide Information Center) (2010) *Glyphosate: General Fact Sheet*, Oregon State University. Available at: <http://npic.orst.edu/factsheets/glyphogen.pdf>

Nwani CD, Nagpure NS, Kumar R, Kushwaha B, Lakra WS (2013). DNA damage and oxidative stress modulatory effects of glyphosate-based herbicide in freshwater fish, *Channa punctatus*. *Environ Toxicol Pharmacol*. 36(2): 539-547.

O'Neil MJ, Heckelman PE, Dobbelaar PH, *et al.* (2013) Glyphosate. In: Merck & Co WS (ed) *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals*.

Olorunsogo OO and Bababunmi EA (1980). Inhibition of succinate-linking reduction of pyridine nucleotide in rat liver mitochondria 'in vivo' by N-(phosphonomethyl)glycine. *Toxicol Lett*. 7(2): 149-152.

Olorunsogo OO (1982). Inhibition of energy-dependent transhydrogenase reaction by N-(phosphonomethyl) glycine in isolated rat liver mitochondria. *Toxicol Lett*. 10(1): 91-95.

Omran NE and Salama WM (2013). The endocrine disrupter effect of atrazine and glyphosate on *Biomphalaria alexandrina* snails. *Toxicol Ind Health*. [Epub ahead of print]

Orsi L, Delabre L, Monnereau A, Delval P, Berthou C, Fenaux P, *et al.* (2009). Occupational exposure to pesticides and lymphoid neoplasms among men: results of a French case-control study. *Occup Environ Med*. 66(5): 291-298.

Ortiz-Ordonez E, Uria-Galicia E, Ruiz-Picos RA, Duran AG, Trejo YH, Sedenio-Diaz JE, *et al.* (2011). Effect of Yerbimat herbicide on lipid peroxidation, catalase activity, and histological damage in gills and liver of the freshwater fish *Goodea atripinnis*. *Arch Environ Contam Toxicol*. 61(3): 443-452.

Paganelli A, Gnazzo V, Acosta H, Lopez SL, Carrasco AE (2010). Glyphosate-based herbicides produce teratogenic effects on vertebrates by impairing retinoic acid signaling. *Chem Res Toxicol*. 23(10): 1586-1595.

Pahwa M, Beane FL, Spinelli JJ, Blair A, Pahwa P, Dosman JA, *et al.* (2014). 0409 The North American Pooled Project (NAPP): Pooled analyses of case-control studies of pesticides and agricultural exposures, lymphohematopoietic cancers and sarcoma. *Occup Environ Med*. 71 Suppl 1 A116.

Pahwa P, Karunanayake CP, Dosman JA, Spinelli JJ, McLaughlin JR (2011). Soft-tissue sarcoma and pesticides exposure in men: results of a Canadian case-control study. *J Occup Environ Med*. 53(11): 1279-1286.

- Pahwa P, Karunanayake CP, Dosman JA, Spinelli JJ, McDuffie HH, McLaughlin JR (2012). Multiple myeloma and exposure to pesticides: a Canadian case-control study. *J Agromedicine*. 17(1): 40-50.
- Palma G (2011). Letter to the editor regarding the article by Paganelli et al. *Chem Res Toxicol*. 24(6): 775-776.
- Paris K and Aris A (2010). [Hypothetical link between endometriosis and xenobiotics-associated genetically modified food]. *Gynecol Obstet Fertil*. 38(12): 747-753.
- Parrot F, Bedry R, Favarel-Garrigues JC (1995). Glyphosate herbicide poisoning: use of a routine aminoacid analyzer appears to be a rapid method for determining glyphosate and its metabolite in biological fluids. *J Toxicol Clin Toxicol*. 33(6): 695-698.
- Paz-y-Miño C, Sánchez ME, Aréval M, Muñoz MJ, Witte T, De-la-Carrera GO, *et al.* (2007). Evaluation of DNA damage in an Ecuadorian population exposed to glyphosate. *Genetics and Molecular Biology*. 30 456-460.
- Paz-y-Miño C, Muñoz MJ, Maldonado A, Valladares C, Cumbal N, Herrera C, *et al.* (2011). Baseline determination in social, health, and genetic areas in communities affected by glyphosate aerial spraying on the northeastern Ecuadorian border. *Rev Environ Health*. 26(1): 45-51.
- Peixoto F (2005). Comparative effects of the Roundup and glyphosate on mitochondrial oxidative phosphorylation. *Chemosphere*. 61(8): 1115-1122.
- Peluso M, Munnia A, Bolognesi C, Parodi S (1998). 32P-postlabeling detection of DNA adducts in mice treated with the herbicide Roundup. *Environ Mol Mutagen*. 31(1): 55-59.
- Perry L, Adams RD, Bennett AR, Lupton DJ, Jackson G, Good AM, *et al.* (2014). National toxicovigilance for pesticide exposures resulting in health care contact - An example from the UK's National Poisons Information Service. *Clin Toxicol (Phila)*. 52(5): 549-555.
- Peruzzo PJ, Porta AA, Ronco AE (2008). Levels of glyphosate in surface waters, sediments and soils associated with direct sowing soybean cultivation in north pampasic region of Argentina. *Environ Pollut*. 156(1): 61-66.
- Pesticide Residues Committee (PRC) (2007) *Pesticide Residues Monitoring: Fourth Quarter Results 2006*, HSE. Available at: [http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC\\_Results\\_and\\_Reports/PRC\\_Reports\\_by\\_Year/pesticide-residue-committee-prc-2006](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC_Results_and_Reports/PRC_Reports_by_Year/pesticide-residue-committee-prc-2006)
- Pesticide Residues Committee (PRC) (2008) *Pesticide Residues Monitoring: Fourth Quarter Results 2007*, HSE. Available at: [http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC\\_Results\\_and\\_Reports/PRC\\_Reports\\_by\\_Year/pesticides-residues-committee-prc-reports-2007](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC_Results_and_Reports/PRC_Reports_by_Year/pesticides-residues-committee-prc-reports-2007)

- Pesticide Residues Committee (PRC) (2009) *Pesticide Residues Monitoring: Fourth Quarter Results 2008*, HSE. Available at:  
[http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC\\_Results\\_and\\_Reports/PRC\\_Reports\\_by\\_Year/pesticide-residues-committee-prc-reports-2009.htm?wbc\\_purpose=Ba](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC_Results_and_Reports/PRC_Reports_by_Year/pesticide-residues-committee-prc-reports-2009.htm?wbc_purpose=Ba)
- Pesticide Residues Committee (PRC) (2010) *Pesticide Residues Monitoring: Fourth Quarter Results 2009*, HSE. Available at:  
[http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC\\_Results\\_and\\_Reports/PRC\\_Reports\\_by\\_Year/pesticide-residues-committee-prc-reports-2009.htm?wbc\\_purpose=Ba](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC_Results_and_Reports/PRC_Reports_by_Year/pesticide-residues-committee-prc-reports-2009.htm?wbc_purpose=Ba)
- Pesticide Residues Committee (PRC) Reports 2010 (2010) *Pesticide Residues Monitoring: Fourth Quarter Results 2010*, HSE. Available at:  
[http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC\\_Results\\_and\\_Reports/PRC\\_Reports\\_by\\_Year/pesticide-residues-committee-prc-reports-2010](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRC-Pesticides-Residues-Committee/PRC_Results_and_Reports/PRC_Reports_by_Year/pesticide-residues-committee-prc-reports-2010)
- Petersen J, Grant R, Larsen SE, Blicher-Mathiesen G (2012). Sampling of herbicides in streams during flood events. *J Environ Monit.* 14(12): 3284-3294.
- Pfeil R and Nieman L (2004) *Glyphosate*, No. Inventory of evaluations performed by the Joint Meeting on Pesticide Residues (JMPR)  
 JMPR Pfeil R and Nieman L 95-169. Available at:  
<http://apps.who.int/pesticide-residues-jmpr-database/pesticide?name=GLYPHOSATE>
- Pieniazek D, Bukowska B, Duda W (2003). [Glyphosate--a non-toxic pesticide?]. *Med Pr.* 54(6): 579-583.
- Pinto Pereira LM, Boysielal K, Siung-Chang A (2007). Pesticide regulation, utilization, and retailers' selling practices in Trinidad and Tobago, West Indies: current situation and needed changes. *Rev Panam Salud Publica.* 22(2): 83-90.
- Piola L, Fuchs J, Oneto ML, Basack S, Kesten E, Casabe N (2013). Comparative toxicity of two glyphosate-based formulations to *Eisenia andrei* under laboratory conditions. *Chemosphere.* 91(4): 545-551.
- Poletta GL, Larriera A, Kleinsorge E, Mudry MD (2009). Genotoxicity of the herbicide formulation Roundup (glyphosate) in broad-snouted caiman (*Caiman latirostris*) evidenced by the Comet assay and the Micronucleus test. *Mutat Res.* 672(2): 95-102.
- Poletta GL, Kleinsorge E, Paonessa A, Mudry MD, Larriera A, Siroski PA (2011). Genetic, enzymatic and developmental alterations observed in *Caiman latirostris* exposed in ovo to pesticide formulations and mixtures in an experiment simulating environmental exposure. *Ecotoxicol Environ Saf.* 74(4): 852-859.
- Prasad S, Srivastava S, Singh M, Shukla Y (2009). Clastogenic effects of glyphosate in bone marrow cells of swiss albino mice. *J Toxicol.* 2009 308985.

- Quaranta A, Bellantuono V, Cassano G, Lippe C (2009). Why amphibians are more sensitive than mammals to xenobiotics. *PLoS One*. 4(11): e7699.
- Rank J, Jensen AG, Skov B, Pedersen LH, Jensen K (1993). Genotoxicity testing of the herbicide Roundup and its active ingredient glyphosate isopropylamine using the mouse bone marrow micronucleus test, Salmonella mutagenicity test, and Allium anaphase-telophase test. *Mutat Res*. 300(1): 29-36.
- Reno U, Gutierrez MF, Regaldo L, Gagneten AM (2014). The impact of Eskoba, a glyphosate formulation, on the freshwater plankton community. *Water Environ Res*. 86(12): 2294-2300.
- Ribeiro DN, Pan Z, Duke SO, Nandula VK, Baldwin BS, Shaw DR, *et al.* (2014). Involvement of facultative apomixis in inheritance of EPSPS gene amplification in glyphosate-resistant *Amaranthus palmeri*. *Planta*. 239(1): 199-212.
- Ribeiro DN, Nandula VK, Dayan FE, Rimando AM, Duke SO, Reddy KN, *et al.* (2015). Possible Glyphosate Tolerance Mechanism in Pitted Morningglory (*Ipomoea lacunosa* L.). *J Agric Food Chem*. 63(6): 1689-1697.
- Richard S, Moslemi S, Sipahutar H, Benachour N, Seralini GE (2005). Differential effects of glyphosate and roundup on human placental cells and aromatase. *Environ Health Perspect*. 113(6): 716-720.
- Roberts DM, Buckley NA, Mohamed F, Eddleston M, Goldstein DA, Mehrsheikh A, *et al.* (2010). A prospective observational study of the clinical toxicology of glyphosate-containing herbicides in adults with acute self-poisoning. *Clin Toxicol (Phila)*. 48(2): 129-136.
- Romano MA, Romano RM, Santos LD, Wisniewski P, Campos DA, de Souza PB, *et al.* (2012). Glyphosate impairs male offspring reproductive development by disrupting gonadotropin expression. *Arch Toxicol*. 86(4): 663-673.
- Romano RM, Romano MA, Bernardi MM, Furtado PV, Oliveira CA (2010). Prepubertal exposure to commercial formulation of the herbicide glyphosate alters testosterone levels and testicular morphology. *Arch Toxicol*. 84(4): 309-317.
- Romero DM, Rios de Molina MC, Juarez AB (2011). Oxidative stress induced by a commercial glyphosate formulation in a tolerant strain of *Chlorella kessleri*. *Ecotoxicol Environ Saf*. 74(4): 741-747.
- Roustan A, Aye M, De MM, Di GC (2014). Genotoxicity of mixtures of glyphosate and atrazine and their environmental transformation products before and after photoactivation. *Chemosphere*. 108 93-100.
- Ruan QL, Ju JJ, Li YH, Liu R, Pu YP, Yin LH, *et al.* (2009). Evaluation of pesticide toxicities with differing mechanisms using *Caenorhabditis elegans*. *J Toxicol Environ Health A*. 72(11-12): 746-751.

- Ruder AM, Waters MA, Butler MA, Carreon T, Calvert GM, Davis-King KE, *et al.* (2004). Gliomas and farm pesticide exposure in men: the upper midwest health study. *Arch Environ Health.* 59(12): 650-657.
- Rueppel ML, Brightwell BB, Schaefer J, Marvel JT (1977). Metabolism and degradation of glyphosphate in soil and water. *J Agric Food Chem.* 25(3): 517-528.
- Rumack BH (2015) *POISINDEX(R) Information System Micromedex, Inc, Englewood, CO, 2015; CCIS Volume 164, edition expires May, 2015. Hall AH & Rumack BH (Eds): TOMES(R) Information System Micromedex, Inc, Englewood, CO, 2015; CCIS Volume 164, edition expires May, 2015. Available at:*  
<http://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~6g2RAAt:3>
- Sakamoto Y, Tada Y, Fukumori N, Tayama K, Ando H, Takahashi H, *et al.* (2007). [A 52-week feeding study of genetically modified soybeans in F344 rats]. *Shokuhin Eiseigaku Zasshi.* 48(3): 41-50.
- Sakamoto Y, Tada Y, Fukumori N, Tayama K, Ando H, Takahashi H, *et al.* (2008). [A 104-week feeding study of genetically modified soybeans in F344 rats]. *Shokuhin Eiseigaku Zasshi.* 49(4): 272-282.
- Saltmiras D, Bus JS, Spanogle T, Hauswirth J, Tobia A, Hill S (2011). Letter to the editor regarding the article by Paganelli *et al.* *Chem Res Toxicol.* 24(5): 607-608.
- Schilman A, Lacasana M, Blanco-Munoz J, Aguilar-Garduno C, Salinas-Rodriguez A, Flores-Aldana M, *et al.* (2010). Identifying pesticide use patterns among flower growers to assess occupational exposure to mixtures. *Occup Environ Med.* 67(5): 323-329.
- Schinasi L and Leon ME (2014). Non-Hodgkin lymphoma and occupational exposure to agricultural pesticide chemical groups and active ingredients: a systematic review and meta-analysis. *Int J Environ Res Public Health.* 11(4): 4449-4527.
- Schulte-Oehlmann U, Oehlmann J, Keil F (2011). Before the curtain falls: endocrine-active pesticides--a German contamination legacy. *Rev Environ Contam Toxicol.* 213 137-159.
- Seralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, *et al.* (2012). Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. *Food Chem Toxicol.* 50(11): 4221-4231.
- Seralini GE, Clair E, Mesnage R, Gress S, Defarge Ns, Malatesta M, *et al.* (2014). Republished study: long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. *Environmental Sciences Europe.* 26(1): 14.
- Sharma D, Gupta A, Kashyap R, Kumar N (2012). Spectrophotometric method for the determination of Glyphosate in relation to its environmental and toxicological analysis. *Arch Environ Sci.* 6 42-49.

- Shukla Y, Arora A, Singh A (2001). Tumourigenic studies on deltamethrin in Swiss albino mice. *Toxicology*. 163(1): 1-9.
- Siddiqui S, Meghvansi MK, Khan SS (2012). Glyphosate, alachor and maleic hydrazide have genotoxic effect on *Trigonella foenum-graecum* L. *Bull Environ Contam Toxicol*. 88(5): 659-665.
- Simonsen L, Fomsgaard IS, Svensmark B, Spliid NH (2008). Fate and availability of glyphosate and AMPA in agricultural soil. *J Environ Sci Health B*. 43(5): 365-375.
- Sinhorin VD, Sinhorin AP, Teixeira JM, Mileski KM, Hansen PC, Moreira PS, *et al.* (2014). Effects of the acute exposition to glyphosate-based herbicide on oxidative stress parameters and antioxidant responses in a hybrid Amazon fish surubim (*Pseudoplatystoma* sp). *Ecotoxicol Environ Saf*. 106 181-187.
- Siviková K and Dianovsky J (2006). Cytogenetic effect of technical glyphosate on cultivated bovine peripheral lymphocytes. *Int J Hyg Environ Health*. 209(1): 15-20.
- Slaninova A, Smutna M, Modra H, Svobodova Z (2009). A review: oxidative stress in fish induced by pesticides. *Neuro Endocrinol Lett*. 30 Suppl 1 2-12.
- Smith R (2014) *Resistant-weed problems could be bad again next year*, Southwest Farm Press. Available at:  
<http://southwestfarmpress.com/cotton/resistant-weed-problems-could-be-bad-again-next-year>
- Solomon KR, Anadon A, Carrasquilla G, Cerdeira AL, Marshall J, Sanin LH (2007). Coca and poppy eradication in Colombia: environmental and human health assessment of aerially applied glyphosate. *Rev Environ Contam Toxicol*. 190 43-125.
- Sorahan T (2015). Multiple Myeloma and Glyphosate Use: A Re-Analysis of US Agricultural Health Study (AHS) Data. *Int J Environ Res Public Health*. 12(2): 1548-1559.
- Soso AB, Barcellos LJ, Ranzani-Paiva MJ, Kreutz LC, Quevedo RM, Anziliero D, *et al.* (2007). Chronic exposure to sub-lethal concentration of a glyphosate-based herbicide alters hormone profiles and affects reproduction of female Jundia (*Rhamdia quelen*). *Environ Toxicol Pharmacol*. 23(3): 308-313.
- Sørensen FW and Gregersen M (1999). Rapid lethal intoxication caused by the herbicide glyphosate-trimesium (Touchdown). *Hum Exp Toxicol*. 18(12): 735-737.
- Stewart M, Olsen G, Hickey CW, Ferreira B, Jelic A, Petrovic M, *et al.* (2014). A survey of emerging contaminants in the estuarine receiving environment around Auckland, New Zealand. *Sci Total Environ*. 468-469 202-210.
- Székács A and Darvas B (2012) Forty years with glyphosate. Herbicides-properties, synthesis and control of weeds. In: Hasaneen M-G (ed) Croatia: InTech, 247-284. Available at:  
<http://cdn.intechweb.org/pdfs/25624.pdf>

- Talbot AR, Chen ZL, Goo TS, Huang JS, Wang SH, Shiaw MH (1991). Plasma levels and hemodynamics in acute glyphosate poisoning. *Ann Emerg Med.* 20(10): 1087.
- Thongprakaisang S, Thiantanawat A, Rangkadilok N, Suriyo T, Satayavivad J (2013). Glyphosate induces human breast cancer cells growth via estrogen receptors. *Food Chem Toxicol.* 59 129-136.
- Tian J, Shi H, Li X, Yin Y, Chen L (2012). Coupling mass balance analysis and multi-criteria ranking to assess the commercial-scale synthetic alternatives: a case study on glyphosate. *Green Chem.* 14 1990-2000.
- Tizhe EV, Ibrahim ND, Fatihu MY, Onyebuchi II, George BD, Ambali SF, *et al.* (2014). Influence of zinc supplementation on histopathological changes in the stomach, liver, kidney, brain, pancreas and spleen during subchronic exposure of Wistar rats to glyphosate. *Comp Clin Path.* 23(5): 1535-1543.
- Tomlin CDS (2000) *The Pesticide Manual: A World Compendium*. 12th Ed. British Crop Protection Council.
- Transparency Market Research (2014) *Glyphosate Market for Genetically Modified and Conventional Crops - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2013 - 2019*. Available at: <http://www.transparencymarketresearch.com/glyphosate-market.html>
- Truta E, Vochita G, Rosu CM, Zamfirache MM, Olteanu Z (2011). Evaluation of Roundup-induced toxicity on genetic material and on length growth of barley seedlings. *Acta Biol Hung.* 62(3): 290-301.
- Tu M, Hurd C, Randall JM. (2001) *Weed control methods handbook: tools & techniques for use in natural areas*. The Nature Conservancy. Available at: <http://www.aocweb.org/aoc/LinkClick.aspx?fileticket=4jI9QIMHFS8%3D&tabid=170&mid=783>
- U.S. Department of Agriculture (1997) *Effects of Surfactants on the Toxicity of Glyphosate, with Specific Reference to RODEO*, No. SERA TR 97-206-1b, Diamond GL and Durkin PR. Available at: <http://www.fs.fed.us/foresthealth/pesticide/pdfs/Surfactants.pdf>
- U.S. Department of Agriculture (2014) *Pesticide Use in U.S. Agriculture: 21 Selected Crops, 1960-2008*, Economic Information Bulletin No. (EIB-124) Washington (DC), Economic Research Service, Fernandez-Cornejo J, Nehring R, Osteen C, *et al.*. Available at: <http://www.ers.usda.gov/media/1424185/eib124.pdf>
- U.S. Environmental Protection Agency (1978) Review of Monsanto Chemical Co. Validation of Industrial Bio-Test Laboratories Report No. E-567; BTL 71-35 Mutagenic Study Submitted in Support of Reg. No. 524-308 EPA Accession No. 234134 (Roundup). William Woodrow, Toxicology Branch. Available at: [http://www.epa.gov/pesticides/chem\\_search/cleared\\_reviews/csr\\_PC-103601\\_7-Aug-78\\_059.pdf](http://www.epa.gov/pesticides/chem_search/cleared_reviews/csr_PC-103601_7-Aug-78_059.pdf)



- U.S. Environmental Protection Agency (1978) *Glyphosate, Review and Evaluation of Tox Data (1) Roundup Operator Exposure and Reentry Data on Glyphosate and N-nitrosoglyphosate and (2) Two-Part Study on Animal Metabolism of N-nitrosoglyphosate*. Accession No. 233914 and 3, Mary Quaife, Toxicology Branch. Available at: <http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-067.pdf>
- U.S. Environmental Protection Agency (1979) Review of *Roundup*, EPA Reg. No 524-308 *Mutagenicity* MRID 00078619, 00078620, Merry Lou Alexander, Toxicology Branch. Available at: <http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-076.pdf>
- U.S. Environmental Protection Agency (1980) Review of *Teratology Study In Rats: Irdc No. 401-054 Including Irdc No. 999-021; Received May 23, 1980 Under 524-308; Prepared By International Research And Development Corp. MRID 00046362*, Rodwell DE, Tasker EJ, Blair AM, et al.. Available at: <http://epa.gov/ncct/toxcast/data.html>
- U.S. Environmental Protection Agency (1980) Review of *Glyphosate: Submission of Rat Teratology, Rabbit Teratology, Dominant Lethal Mutagenicity Assay in Mice*. EPA Reg. No. 524-308, No. Tox review 000120, William Dykstra, Toxicology Branch. Available at: <http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-090.pdf>
- U.S. Environmental Protection Agency (1980) EPA Reg. No. 524-308, Review of *Glyphosate; Submission of Rat Teratology, Rabbit Teratology, Dominant Lethal Mutagenicity Assay in Mice*. Acc. 242516. MRID 00046362, No. Tox review 000120.EPA. Available at: <http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-090.pdf>
- U.S. Environmental Protection Agency (1983) Review of *A Chronic Feeding Study Of Glyphosate (Roundup Technical) In Mice: Project No. 77-2061: Bdn-77- 420. Final Rept (Received Aug 17, 1983 Under 524-308; Prepared By Bio/Dynamics, Inc. MRID 00130406*, Knezevich A and Hogan G. Available at: <http://epa.gov/ncct/toxcast/data.html>
- U.S. Environmental Protection Agency (1984) Review of *Mutagenicity Studies with Glyphosate*, No. Tox review 003868, William Dykstra, Toxicology Branch. Available at: <http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-167.pdf>
- U.S. Environmental Protection Agency (1984) Review of *Glyphosate, Oncogenicity Study in the Mouse. PP #3E2845; Caswell No. 661A*, William Dykstra, Toxicology Branch. Available at: <http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-166.pdf>
- U.S. Environmental Protection Agency (1984) *Glyphosate Oncogenicity (note to Ed Johnson)*, William Burnam, Toxicology Branch. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-159b.pdf>

U.S. Environmental Protection Agency (1985) *Consensus Review of glyphosate*, Taylor R.

Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-211.pdf>

U.S. Environmental Protection Agency (1985) Review of *Glyphosate*; EPA Reg. 524-308; mouse oncogenicity study, Casewell 661A, Accession No. 251007-014, No. Tox review 004370, William Dykstra, Toxicology Branch. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-183.pdf>

U.S. Environmental Protection Agency (1985) *Glyphosate evaluation of kidney tumors in male mice*, No. Tox report 004855 part 2 of 2. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-206.pdf>

U.S. Environmental Protection Agency (1985) *EPA Reg 524-308 Roundup: Glyphosate; Pathology Report on Additional Kidney Sections*, No. Tox Rep 004855. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-207.pdf>

U.S. Environmental Protection Agency (1986) Review of *Glyphosate*; EPA Registration No. 524-308; Roundup; *Additional Histopathological Evaluations of Kidneys in the Chronic Feeding Study of Glyphosate in Mice*, No. Tox Review 005590. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-211.pdf>

U.S. Environmental Protection Agency (1986) *Transmittal of the final FIFRA scientific Advisory Panel report Feb 11-12 1986: Glyphosate*. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-209.pdf>

U.S. Environmental Protection Agency (1987) Review of 90-day Study of Glyphosate Administered in Feed to Sprague/Dawley Rats: Proj. ID ML-86-351/EHL 86128. Prepared by Monsanto Agricultural Co. 267 p. MRID 40559401, Stout L and Johnson C. Available at: <http://epa.gov/ncct/toxcast/data.html>

U.S. Environmental Protection Agency (1990) Review of Chronic Study Of Glyphosate Administered In Feed To Albino Rats: Lab Project Number: Msl-10495: R.D. 1014. Prepared By Monsanto Agricultural Co. 2175 P. MRID 41643801, Stout L and Ruecker F. Available at: <http://epa.gov/ncct/toxcast/data.html>

U.S. Environmental Protection Agency (1991) *Second peer review of Glyphosate*, No. Tox Chem 661A. Available at:

<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-265.pdf>

U.S. Environmental Protection Agency (1991) Review of *Glyphosate; 2-Year Combined Chronic Toxicity/ Carcinogenicity Study in Sprague-Dawley Rats - List A Pesticide for Reregistration*. MRID 416438-01, No. Tox review 008390, William Dykstra, Toxicology Branch. Available at:  
<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-263.pdf>

U.S. Environmental Protection Agency (1991) *Peer Review on Glyphosate*. No. 8527

U.S. Environmental Protection Agency (1991) Review of *Glyphosate - EPA Registration No. 524-308 - 2-Year Chronic Feeding/Oncogenicity Study in Rats with Technical Glyphosate*. MRID 416438-01, No. Tox review 008897, William Dykstra, Toxicology Branch I. Available at:  
<http://www.epa.gov/pesticides/chemicalsearch/chemical/foia/cleared-reviews/reviews/103601/103601-268.pdf>

U.S. Environmental Protection Agency (1992) *Determination of Glyphosate in Drinking Water by Direct-Aqueous-Injection HPLC, Post Column Derivatization, and Fluorescence Detection*, No. Supplement II (EPA/600/R-92-129)

U.S. Environmental Protection Agency (1993) *RED Facts: Glyphosate*, No. EPA-738-F-93-011, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs. Available at: <http://www.epa.gov/oppsrd1/reregistration/REDs/factsheets/0178fact.pdf>

U.S. Environmental Protection Agency (1993) *Reregistration Eligibility Decision (RED): Glyphosate*, No. EPA-738-R-93-014, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs. Available at:  
[http://www.epa.gov/opp00001/chem\\_search/reg\\_actions/reregistration/red\\_PC-417300\\_1-Se-p-93.pdf](http://www.epa.gov/opp00001/chem_search/reg_actions/reregistration/red_PC-417300_1-Se-p-93.pdf)

U.S. Environmental Protection Agency (1997) *Pesticides industry sales and usage - 1994 and 1995 market estimates*, No. EPA 733-R-97-002 Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs Biological and Economic Analysis Division. Available at: [http://www.epa.gov/pesticides/pestsales/95pestsales/market\\_estimates1995.pdf](http://www.epa.gov/pesticides/pestsales/95pestsales/market_estimates1995.pdf)

U.S. Environmental Protection Agency (2009) *2009 Edition of the Drinking Water Standards for health and Advisories EPA 822-R-09-011*, Office of Water. Available at:  
<http://water.epa.gov/action/advisories/drinking/upload/dwstandards2009.pdf>

U.S. Environmental Protection Agency (2011) *Pesticides industry sales and usage 2006 and 2007 market estimates*, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs, Biological and Economic Analysis Division. Available at:  
[http://www.epa.gov/opp00001/pestsales/07pestsales/market\\_estimates2007.pdf](http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf)

- U.S. Environmental Protection Agency (2014) *Glyphosate*, Integrated Risk Information System, Office of Research and Development. Available at: <http://www.epa.gov/iris/subst/0057.htm>
- U.S. Geological Survey (2001) *Methods of Analysis by the U.S. Geological Survey Organic Geochemistry Research Group -- Determination of Glyphosate, Aminomethylphosphonic Acid, and Glufosinate in Water Using Online Solid-Phase Extraction and High-Performance Liquid Chromatography/Mass Spectrometry*, Open-File Report 01-454 Lee EA, Strahan AP, Thurman EM. Available at: <http://ks.water.usgs.gov/pubs/reports/ofr.01-454.pdf>
- Unver T, Bakar M, Shearman RC, Budak H (2010). Genome-wide profiling and analysis of *Festuca arundinacea* miRNAs and transcriptomes in response to foliar glyphosate application. *Mol Genet Genomics*. 283(4): 397-413.
- Uren Webster TM, Laing LV, Florance H, Santos EM (2014). Effects of glyphosate and its formulation, roundup, on reproduction in zebrafish (*Danio rerio*). *Environ Sci Technol*. 48(2): 1271-1279.
- Uren Webster TM and Santos EM (2015). Global transcriptomic profiling demonstrates induction of oxidative stress and of compensatory cellular stress responses in brown trout exposed to glyphosate and Roundup. *BMC Genomics*. 16(1): 32.
- Vainio H, Linnainmaa K, Kahonen M, Nickels J, Hietanen E, Marniemi J, *et al.* (1983). Hypolipidemia and peroxisome proliferation induced by phenoxyacetic acid herbicides in rats. *Biochem Pharmacol*. 32(18): 2775-2779.
- Valverde JR, Marin S, Mellado RP (2014). Effect of herbicide combinations on Bt-maize rhizobacterial diversity. *J Microbiol Biotechnol*. 24(11): 1473-1483.
- Varona M, Henao GL, Diaz S, Lancheros A, Murcia A, Rodriguez N, *et al.* (2009). [Effects of aerial applications of the herbicide glyphosate and insecticides on human health]. *Biomedica*. 29(3): 456-475.
- Vasiluk L, Pinto LJ, Moore MM (2005). Oral bioavailability of glyphosate: studies using two intestinal cell lines. *Environ Toxicol Chem*. 24(1): 153-160.
- Vera-Candioti J, Soloneski S, Larramendy ML (2013). Evaluation of the genotoxic and cytotoxic effects of glyphosate-based herbicides in the ten spotted live-bearer fish *Cnesterodon decemmaculatus* (Jenyns, 1842). *Ecotoxicol Environ Saf*. 89 166-173.
- Vigfusson NV and Vyse ER (1980). The effect of the pesticides, Dexon, Captan and Roundup, on sister-chromatid exchanges in human lymphocytes in vitro. *Mutat Res*. 79(1): 53-57.
- Vila-Aiub MM, Goh SS, Gaines TA, Han H, Busi R, Yu Q, *et al.* (2014). No fitness cost of glyphosate resistance endowed by massive EPSPS gene amplification in *Amaranthus palmeri*. *Planta*. 239(4): 793-801.

- Waichman AV, Rombke J, Ribeiro MO, Nina NC (2002). Use and fate of pesticides in the Amazon State, Brazil: risk to human health and the environment. *Environ Sci Pollut Res Int*. 9(6): 423-428.
- Walsh LP, McCormick C, Martin C, Stocco DM (2000). Roundup inhibits steroidogenesis by disrupting steroidogenic acute regulatory (StAR) protein expression. *Environ Health Perspect*. 108(8): 769-776.
- Wang G, Deng S, Li C, Liu Y, Chen L, Hu C (2012). Damage to DNA caused by UV-B radiation in the desert cyanobacterium *Scytonema javanicum* and the effects of exogenous chemicals on the process. *Chemosphere*. 88(4): 413-417.
- Ware GW, Whitacre DM (2004) *The Pesticide Book*. 6th ed. Willoughby (Ohio): Farm Chemicals International magazine, Meister Media Worldwide.
- Wester RC, Melendres J, Sarason R, McMaster J, Maibach HI (1991). Glyphosate skin binding, absorption, residual tissue distribution, and skin decontamination. *Fundam Appl Toxicol*. 16(4): 725-732.
- Wester RC, Quan D, Maibach HI (1996). In vitro percutaneous absorption of model compounds glyphosate and malathion from cotton fabric into and through human skin. *Food Chem Toxicol*. 34(8): 731-735.
- Wiersma AT, Gaines TA, Preston C, Hamilton JP, Giacomini D, Robin BC, *et al.* (2015). Gene amplification of 5-enol-pyruvylshikimate-3-phosphate synthase in glyphosate-resistant *Kochia scoparia*. *Planta*. 241(2): 463-474.
- Williams GM, Kroes R, Munro IC (2000). Safety evaluation and risk assessment of the herbicide Roundup and its active ingredient, glyphosate, for humans. *Regul Toxicol Pharmacol*. 31(2 Pt 1): 117-165.
- Wunnapuk K, Gobe G, Endre Z, Peake P, Grice JE, Roberts MS, *et al.* (2014). Use of a glyphosate-based herbicide-induced nephrotoxicity model to investigate a panel of kidney injury biomarkers. *Toxicol Lett*. 225(1): 192-200.
- Xie L, Thrippleton K, Irwin MA, Siemering GS, Mekebri A, Crane D, *et al.* (2005). Evaluation of estrogenic activities of aquatic herbicides and surfactants using an rainbow trout vitellogenin assay. *Toxicol Sci*. 87(2): 391-398.
- Yadav SS, Giri S, Singha U, Boro F, Giri A (2013). Toxic and genotoxic effects of Roundup on tadpoles of the Indian skittering frog (*Euflectis cyanophlyctis*) in the presence and absence of predator stress. *Aquat Toxicol*. 132-133 1-8.
- Yewhalaw D, Wassie F, Steurbaut W, Spanoghe P, Van BW, Denis L, *et al.* (2011). Multiple insecticide resistance: an impediment to insecticide-based malaria vector control program. *PLoS One*. 6(1): e16066.

- Yiin JH, Ruder AM, Stewart PA, Waters MA, Carreon T, Butler MA, *et al.* (2012). The Upper Midwest Health Study: a case-control study of pesticide applicators and risk of glioma. *Environ Health*. 11 39.
- Yin G (2011) *Glyphosate: There Is No Substitute*. Willoughby (Ohio): Farm Chemicals International magazine, Meister Media Worldwide. Available at: <http://www.farmchemicalsinternational.com/crop-inputs/herbicides/glyphosate-there-is-no-substitute/>
- Yoshioka N, Asano M, Kuse A, Mitsuhashi T, Nagasaki Y, Ueno Y (2011). Rapid determination of glyphosate, glufosinate, bialaphos, and their major metabolites in serum by liquid chromatography-tandem mass spectrometry using hydrophilic interaction chromatography. *J Chromatogr A*. 1218(23): 3675-3680.
- You MJ, Shin GW, Lee CS (2015). Clostridium tertium bacteremia in a patient with glyphosate ingestion. *Am J Case Rep*. 16 4-7.
- Yousef MI, Salem MH, Ibrahim HZ, Helmi S, Seehy MA, Bertheussen K (1995). Toxic effects of carbofuran and glyphosate on semen characteristics in rabbits. *J Environ Sci Health B*. 30(4): 513-534.
- Yue Y, Zhang Y, Zhou L, Qin J, Chen X (2008). In vitro study on the binding of herbicide glyphosate to human serum albumin by optical spectroscopy and molecular modeling. *J Photochem Photobiol B*. 90(1): 26-32.
- Zahm SH, Weisenburger DD, Babbitt PA, Saal RC, Vaught JB, Cantor KP, *et al.* (1990). A case-control study of non-Hodgkin's lymphoma and the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) in eastern Nebraska. *Epidemiology*. 1(5): 349-356.
- Zhao W, Yu H, Zhang J, Shu L (2013). [Effects of glyphosate on apoptosis and expressions of androgen-binding protein and vimentin mRNA in mouse Sertoli cells]. *Nan Fang Yi Ke Da Xue Xue Bao*. 33(11): 1709-1713.
- Zouaoui K, Dulaurent S, Gaulier JM, Moesch C, Lachatre G (2013). Determination of glyphosate and AMPA in blood and urine from humans: about 13 cases of acute intoxication. *Forensic Sci Int*. 226(1-3): e20-e25.

---

**From:**  
**Sent:** 27 March 2015 18:00  
**To:**  
**Subject:** RE: Glyphosate

Dear all,

FYI the link to the IARC classification list. Caffeine is Cat 3. Glyphosate, is already listed in Cat 2A and there are several well known carcinogens in the group.

<http://monographs.iarc.fr/ENG/Classification/ClassificationsGroupOrder.pdf>

KR,

-----Original Appointment-----



**From:**  
**Sent:** 25 March 2015 18:01  
**To:**  
**Subject:** Glyphosate  
**When:** 27 March 2015 16:30-17:00 (UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.  
**Where:**

Following 's request and the IARC publication; we are calling for a short wrap up meeting.

Best regards,

**To:**   
**Subject:** Fw: feedback from PPR plenary 25-26 March

Dear

With respect to the feedback to the SC this week, in addition to the discussion on the  ,  I think I should inform the SC on the discussion on glyphosate (IARC vs peer-review), from the perspective of the use of epidemiological data in pesticide risk assessment, and link the media attention in several member states to the current PPR mandates on this. I won't go into who is right or wrong but I would like to explain that there is an ongoing peer review in the Pesticide unit /DE and that there will be further follow-up when the IARC monograph becomes available, and that this is an example where epidemiological data do not match with the animal data.  
Is this OK with you?

Kind regards,

 mobile  
E-mail: 

Forward: 13-04-2015 14:54

From:   
To:   
Cc:   
Date: 13-04-2015 10:47  
Subject: feedback from PPR plenary 25-26 March

---

Dear



---

**From:** EFSA  
**Sent:** 22 April 2015 13:15  
**To:**  
**Subject:** Carcinogenic assessment of glyphosate by IARC

**Sensitivity:**

Dear

We have been informed by the EC colleagues that the Cabinet yesterday decided that the Commission will officially ask EFSA to check out the carcinogenicity assessment with IARC; a letter from is currently under preparation.

KR,

glyphosate raised by IARC and, where necessary, to liaise with that organisation, as to obtain the necessary elements. It is our understanding that, while the publication of the final IARC Monograph is only foreseen for 2016, on technical level IARC has agreed to make a reference list of the studies used by IARC in its assessment of glyphosate available to EFSA within the month of April 2015.

EFSA should examine whether any additional information was relied upon by IARC, as compared to the information available for the renewal procedure. Furthermore, EFSA should establish to which extent IARC's assessment was based on information on the active substance glyphosate vs. on formulated plant protection products containing glyphosate and co-formulants.

Thereafter, EFSA should consider whether an amendment of the original proposal as regards classification of glyphosate is necessary, and whether a firm causality can be established between the phenomena observed in IARC's assessment and the application of glyphosate containing plant protection products consistent with good plant protection practice and having regard to realistic conditions of use.

While the Commission requests EFSA to integrate the above considerations into the framework of the peer review of the active substance glyphosate, reference is also made to Article 30(1) and (2) of Regulation (EC) No 178/2002, which deals with diverging scientific opinions.

I would highly appreciate if EFSA could react to this request within the agreed timelines of the ongoing peer review.

My services remain at your disposal for further information. On this matter, you can contact [REDACTED] who is responsible for this dossier in the pesticide sector of Unit E3.




Yours sincerely,

[REDACTED]

Cc:

[REDACTED]

---

**From:**   
**Sent:** 20 May 2015 16:12  
**To:**   
**Cc:**   
**Subject:** RE: Art.31 - glyphosate - acceptance of mandate  
**Attachments:** Glyphosate - Acceptance letter for Mandate to consider findings by IARC .pdf

**Categories:** 



Dear ,

Please find in attachment the ED acceptance letter for upload on the RAW.

Thank you.

Kind regards.

---




**From:**   
**Sent:** 12 May 2015 11:19  
**To:** PRAS.secretariat  
**Cc:**   
**Subject:** RE: Art.31 - glyphosate - acceptance of mandate

Dear

The Q number is EFSA-Q-2015-00279. Please fill in the missing fields including point H of your email. The draft output number should be linked by the Unit.

Thanks

---




**From:**   
**Sent:** 12 May 2015 09:31  
**To:**   
**Cc:**   
**Subject:** FW: Art.31 - glyphosate - acceptance of mandate

Ciao ,

Poichè  non c'è ci puoi pensare tu?

Grazie mille.

---

**From:**   
**Sent:** 11 May 2015 15:00  
**To:**   
**Cc:**   
**Subject:** Art.31 - glyphosate - acceptance of mandate

Dear ,

Please find in attachment the letter from EC, could you please open a new question linked to the on-going mandate M-2014-0226:

1. Upload the EC letter at mandate level
2. Information for the question:
  - a. Question type: Application
  - b. Food sector area: Pesticides
  - c. Subject/subarea: Request to consider the findings by IARC as regards the potential carcinogenicity of glyphosate or glyphosate containing plant protection products in the ongoing peer review of the active substance
  - d. Visibility: visible
  - e. Activity: Activity 2
  - f. Type of deadline: Negotiated deadline
  - g. Deadline: 13/08/2015
  - h. Output type: Other Scientific Outputs – Conclusion on Pesticides Peer Review.

Thank you.

Kind regards,

EXECUTIVE DIRECTOR

**19 MAY 2015**

Ref. [REDACTED] (2015) – out- 14186575

Mr [REDACTED]  
[REDACTED]  
Directorate General for Health and Food Safety  
European Commission  
200, rue de la Loi  
B-1049 Brussels  
Belgium

**Re: Request to consider the findings by IARC as regards the potential carcinogenicity of glyphosate or glyphosate containing plant protection products in the ongoing peer review of the active substance**

*Ref.: Ares(2015)1823991 – 29/04/2015*


Dear Mr [REDACTED],

On 30 April 2015, the European Food Safety Authority (EFSA) received from the European Commission (EC) the mandate to take into account in its ongoing peer review of glyphosate the findings of IARC, to investigate the carcinogenic potential of glyphosate raised by IARC and where necessary to liaise with IARC as to obtain the necessary elements.

EFSA has already contacted IARC asking for additional information, but following this mandate, we will submit a formal request referring to Article 30(2) of Regulation (EC) No 178/2002. The monograph supporting the IARC findings is not available, this information is essential for a proper understanding of the scientific arguments supporting the IARC proposal.

EFSA accepts the mandate and has assigned EFSA Question Number EFSA-Q-2015-00279 to this task. EFSA will integrate its views on the proposed IARC classification into the conclusion on the peer review of the active substance glyphosate (deadline on 13 August 2015). After receiving the information from IARC, EFSA would require at least two months for conducting a proper evaluation of the IARC assessment. Therefore, this deadline may require an extension if IARC submits or publishes relevant information after 13 June 2015. If this is the case, EFSA will consult your services and request an extension of the deadline for the EFSA conclusion on glyphosate in order to cover properly this mandate.

Yours sincerely,



Cc:

Director

Advisory

Panel

U

. ( )

,  
,

**From:**  
**Sent:** 20 May 2015 16:43  
**To:** com@iarc.fr  
**Cc:**  
**Subject:** Final monograph supporting IARC classification of glyphosate  
**Attachments:** Glyphosate - Access request to final monograph supporting IARC classification.pdf

Dear [REDACTED],

On behalf of [REDACTED], please find attached the letter regarding the access request to final monograph supporting the IARC classification of glyphosate as "probably carcinogenic to humans".

The original document will be sent by post.

Yours sincerely,

PESTICIDES Unit  
REPRO Department



Via Carlo Magno 1A  
43126 Parma (Italy)  
Tel: +39. 0521. 036  
[www.efsa.europa.eu](http://www.efsa.europa.eu)

[twitter.com/EFSA\\_EU](https://twitter.com/EFSA_EU)



[youtube.com/EFSAchannel](https://youtube.com/EFSAchannel)



---

**From:**  
**Sent:** 23 March 2015 18:08  
**To:**  
**Cc:**  
**Subject:** RE: unable to travel this week!

Dear

It is fine with me. Maybe will bring it up and now we would be prepared in case.

The situation is a bit awkward because the same data is being assessed by different experts and the conclusions don't seem in line.

I am also thinking about the upcoming event of the commission that many of us will be involved in (the 24th of April). So if it is raised we could complement each other.

Kind regards

Sendt fra Samsung mobil

----- Oprindelig meddelelse -----

**Fra:**  
**Dato:** 23/03/2015 16:38 (GMT+01:00)  
**Til:**  
**Cc:**

**Emne:** RE: unable to travel this week!

Dear

Thank you for the information regarding the IARC classification of glyphosate. I check the state of play with my colleagues involved in the peer-review. Glyphosate is being considered under the AIR II procedure and was discussed in expert meeting end of February 2015. EFSA is aware of the IARC conclusions and the RMS will address this in an addendum to the RAR currently being drafted.

Probably this is addressing your point and to my opinion, there is no need to have a formal point raised in the plenary. Can you confirm?

Kind regards,

---

**From:**  
**Sent:** 23 March 2015 10:30  
**To:**



**Subject:** SV: unable to travel this week!

Dear

Ok fine with me.

I have a suggestion to the agenda. Could we on AOB put a point on the recent IARC classification of Glyphosate. The situation and how it is managed ?

KR

---

**From:** [\[redacted\]](#)  
**Sent:** maandag 23 maart 2015 6:22  
**To:** [\[redacted\]](#)  
**Cc:** [\[redacted\]](#)  
**Subject:** RE: unable to travel this week!

Dear

I am able to chair this week but would also be absolutely happy if [redacted] does it.

lf.

With kind regards

Sendt fra Samsung mobil

----- Oprindelig meddelelse -----

Fra:

Dato: 23/03/2015 00:12 (GMT+01:00)

Til:

P

Cc.

Emne: unable to travel this week!

Dear all,

To my regret I am unable to travel this week to attend the WG on residue definition and the PPR Plenary meeting.

research. My

s tomorrow but it is already clear that it is impossible for me to travel to Parma on

Tuesday morning. I am very sorry to let you down, please give my apologies to the PPR Panel.

I am sorry for forcing you to take over chairing the meeting on very short notice.

Kind regards,

Delivered to you by [redacted] environment.

---

**From:**  
**Sent:** 21 April 2015 20:29  
**To:**  
**Cc:**  
**Subject:** RE: SV: feedback from PPR plenary 25-26 March

OK, sounds reasonable.

Kind regards,

Delivered to you by environment.

---

**From:** <[redacted]@efsa.europa.eu>  
**Sent:** 21 apr. 2015 18:52  
**To:** I  
**Cc:**

**Subject:** RE: SV: feedback from PPR plenary 25-26 March

Dear

It is fine if you inform the SC about the procedural status of glyphosate under Regulation 1107/2009.

However, it's better not to make any qualitative appreciation of the EU and IARC assessments. Although it is true that we still have little experience with epidemiological studies, we are not sure that the divergence of opinion between the RMS and IARC regarding glyphosate carcinogenicity is based on divergent results, but rather a different interpretation of the results (according to a preliminary assessment done by the RMS as the IARC monograph is not yet available). Furthermore the summary of the IARC evaluation states that their classification is based mainly on animal data, supported by epidemiological data.

In addition, it hasn't been discussed whether a follow up would be needed when the IARC monograph becomes available. Note that other pesticides referred by the IARC publication (malathion and diazinon) are also reported as genotoxic carcinogen.

Kind regards,

---

**From:** [redacted]@[redacted]  
**Sent:** 21 April 2015 15:01  
**To:** M  
**Subject:** Fw: SV: feedback from PPR plenary 25-26 March

Dear

With respect to the feedback to the SC this week, in addition to the discussion on the ERA opinions I think I should inform the SC on the discussion on glyphosate (IARC vs peer-review), from the perspective of the use of epidemiological data in pesticide risk assessment, and link the media attention in several member states to the current PPR mandates on this. I won't go into who is right or wrong but I would like to explain that there is an ongoing peer review in the Pesticide unit /DE and that there will be further follow-up when the IARC monograph becomes available, and that this is an example where epidemiological data do not match with the animal data. Is this OK with you?

---

**From:**  
**Sent:** 19 May 2015 19:10  
**To:**  
**Subject:** RE: Glyphosate

Dear , in that case it might not be interesting enough. I hope you do not mind.  
With kind regards,

-----Original Message-----

**From:** [mailto: a.europa.eu]  
**Sent:** dinsdag 19 mei 2015 19:06  
**To:**  
**Cc:**  
**Subject:** Re: Glyphosate

Dear we can present the EFSA process, which includes both hazard and risk assessment elements but not in the context of IARC. We can explain how EFSA considers other assessments and address divergences. My concern is that for glyphosate we are still in the evaluation phase, thus there are not two assessments and we cannot anticipate the EFSA view. I assume that a technical comparison of the classification criteria is not relevant for your audience, thus, please consider if our presence can be of interest when the only message we can provide now is that we will publish our conclusion after the summer. KR

Sent from my iPhone

> On 19 May 2015, at 13:24, > wrote:  
>  
> Dear  
>  
> This sounds good. We would in particular be interested in a presentation that discusses EFSA's pesticide risk assessment process (hazard and exposure) in the context of the IARC process (hazard only and how the two different approaches should be regarded for human health risk. We expect this would help a lot to understand the differences in assessments by different agencies with the resulting confusions and misunderstandings. Will this be possible to include in the presentation?  
>  
> The date for the round table is June 18 in the morning.  
>  
> Looking forward to hearing from you.  
>  
> With kind regards,

> -----Original Message-----

> **From:** [mailto: efsa.europa.eu]  
> **Sent:** maandag 18 mei 2015 9:56  
> **To:**  
> **Cc:**  
> **Subject:** RE: Glyphosate

> Dear  
> As already indicated, according to the EFSA policy we do not comment/anticipate ongoing risk assessments. Thus, specifically on glyphosate, the only information we are able to provide is that we are finalising the peer-review and that the EFSA conclusion will be available during the summer. As already mentioned to we can provide a generic overview on EFSA role and activities on pesticides. The current assessment on glyphosate is part of the standard regular renewal process for pesticides in the EU, and we can present the procedural issues, but the EFSA view will not be ready by June. Please let me know if this general presentation could be of interest for you and the exact date.

> Best regards,

>  
>  
>  
>  
> ..

> Via Carlo Magno 1/A

> I-43126 Parma

> Italy

> Tel: +39 0521 036 Fax: +39 0521 036

> E-mail: @efsa.europa.eu

> www.efsa.europa.eu

> twitter.com/EFSA\_EU

> youtube.com/EFSAchannel

> This e-mail, including its attachments, is intended only for the use of the recipient(s) named above. Unless you are a named recipient (or authorised by a recipient), access to this e-mail message or any disclosure or copying of its content, or any action taken in reliance on it is unauthorised and may be unlawful. If you are not the intended recipient, please let the sender know immediately.

> -----Original Message-----

> From: [mailto: @wur.nl]

> Sent: 16 May 2015 17:04

> To:

> Cc:

> Subject: FW: Glyphosate

> Dear

> was so kind to provide me with your contact details.

> I like to inquire if you or a member of your unit could give a presentation on EFSA's activities on human and environmental risk assessment. As I understood from you cannot talk about the ongoing glyphosate case, but we would be interested to learn how the activities relate to the current glyphosate case. I hope this will be possible. The presentation would be part of a plenary session of the 2015 ICABR conference in Ravello, Italy, June 16 to 20, 2015. The panel will include a representative of Monsanto, a representative from PRMA Canada, an environmental economist, and hopefully an EFSA representative.

> About 120 people attend the conference every year. Participants are mainly economists working in the field of bioeconomy economics and policy. You can find additional information about the ICABR and this year's conference at <http://economia.uniroma2.it/icabr> . The conference organisers would be happy to cover your travel and accommodation costs.

> Looking forward to hearing from you at your earliest convenience.

> With kind regards,

> e-mail: @

**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** FW: Anfrage ARD Report  
**Date:** 04 June 2015 09:28:09

---

Hi [REDACTED],

[REDACTED] meint, dass der BfR draft assessment report unter dem untenstehenden Link verfügbar ist. Ich hatte ihm gesagt, nach Rücksprache mit der Unit (dir) dass der BfR Report nur auf der BfR Seite zu finden ist.

Unter dem Link <http://dar.efsa.europa.eu/dar-web/provision> finde ich aber nur Commission regulations in der Spalte "Glyphosate".

Was ist jetzt richtig?

Und: Gibt es Neuigkeiten bezgl. des IARC? Haben die geliefert und wir schaffen es in der Deadline für Glyphosate oder verschieben wir unsere Deadline?

Viele Grüße,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 03 June 2015 18:54  
**To:** [REDACTED]; [REDACTED]  
**Subject:** RE: Anfrage ARD Report

Hi [REDACTED] – I don't think this is correct...we publish the Draft Assessment Reports from the RMS. I found the link at last, it is here... <http://dar.efsa.europa.eu/dar-web/provision>  
I also found a note I had made for myself on the whole process, best [REDACTED]

- EFSA receives the DAR from the Rapporteur Member State
- EFSA initiates the 2-month commenting period with Member States (they receive the full unredacted version of the application)
- In parallel, EFSA carries out a 'sanitisation' process with the applicant to determine which data/info in the application are to be deemed confidential for commercial reasons. EFSA allows 2 weeks for this process but in rare cases it can drag on, sometimes for a period of several weeks.
- Once EFSA and the applicant finalise the sanitisation process, the redacted version of the DAR is published on our website here: <http://dar.efsa.europa.eu/dar-web/provision>
- This signals the launch of the 2 month public consultation
- Once EFSA finalises the commenting period with MS, it begins the peer review incorporating comments from MS and the public consultation as and when it receives them during the process.
- Once the peer review is finalised (6 months after receiving the DAR unless EFSA makes additional requests for data to the applicant) it is published on our website.

**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** FW: Glyphosate [REDACTED]  
**Date:** 19 June 2015 13:00:21  
**Attachments:** [REDACTED]

---

FYI as there are so many things on-going in parallel.

Best regards,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 19 June 2015 12:21  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Glyphosate [REDACTED]

Dear [REDACTED],

Following our phone call earlier this morning, I attach the updated internal note on glyphosate.  
Please let me know if you need further input from my side,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 19 June 2015 11:29  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]; [REDACTED]  
**Subject:** RE: Glyphosate/ update [REDACTED]

EU Food Policy refers to WHO has created an ad hoc expert task force on glyphosate to consider possible divergences between IARC and WHO/FAO joint mtg on pesticides residues  
I tend to think that this is something different but not sure

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 19 June 2015 11:22  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]; [REDACTED]  
**Subject:** Re: Glyphosate [REDACTED]

Dear [REDACTED], I assume your reference is to the ad hoc JMPR WG. We have also agreed to exchange the assessments and coordinate the publication. KR [REDACTED]

Sent from my iPhone

On 19 Jun 2015, at 10:29, [REDACTED] <[REDACTED]@efsa.europa.eu> wrote:

Thanks [REDACTED] – just read in the EU Food Policy that WHO set up a task force on glyphosate and see some familiar names there: [REDACTED], [REDACTED], [REDACTED]...





**Subject:** EFSA Daily Press Review 15 June 2015

**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** RE: glyphosate ongoing activities  
**Date:** 30 June 2015 11:06:06

---

Thank you [REDACTED]!

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Tuesday, June 30, 2015 11:02 AM  
**To:** [REDACTED]; [REDACTED]  
**Cc:** [REDACTED]@bfr.bund.de  
**Subject:** glyphosate ongoing activities

Dear [REDACTED] and [REDACTED],

this morning I have had several telephone calls with the BfR ([REDACTED] and [REDACTED]), [REDACTED] will be in EFSA as a member of the [REDACTED] on 1 and 2 July. He asked me, whether it would be possible to meet with you to discuss the ongoing activities on glyphosate. He may contact you, [REDACTED] [REDACTED] once he will be in EFSA to arrange for an appointment.

I understood that Germany initiated steps for the CLH procedure and was already asked by their ministry to have a thorough look into the monograph of IARC, as soon as it will be available.

[REDACTED]'s mobile phone number is: [REDACTED]

If needed, I could participate in a short TC, but that might jeopardise the flexibility to arrange for a spontaneous meeting with [REDACTED].

Have a nice day.

[REDACTED]

[REDACTED]

Scientific Co-ordinator  
European Food Safety Authority  
Pesticide Risk Assessment Peer Review (PRAPeR)

Via Carlo Magno 1A  
I-43126 Parma  
Tel: + [REDACTED]  
Fax: + [REDACTED]  
Email: [REDACTED]@efsa.europa.eu  
Website: <http://www.efsa.europa.eu>

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]; [Team External Relations](#); [REDACTED];  
**Subject:** RE: Summary: Communications re IARC - Glyphosate / News in Brief for next week  
**Date:** 17 July 2015 17:42:59  
**Attachments:** [image002.png](#)  
[image004.png](#)  
[image006.png](#)

---

Dear [REDACTED],

See my comments below.

Regards

[REDACTED]

[REDACTED]

Scientific Officer  
Pesticides / Regulated Products



European Food Safety Authority

Via Carlo Magno 1A  
43126 Parma (Italy)

Tel. [REDACTED]

[www.efsa.europa.eu](http://www.efsa.europa.eu)

[twitter.com/EFSA\\_EU](https://twitter.com/EFSA_EU) 

[youtube.com/EFSAchannel](https://youtube.com/EFSAchannel) 

---

**From:** [REDACTED]  
**Sent:** 17 July 2015 17:34  
**To:** [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]; [REDACTED]; [Team External Relations](#)  
**Subject:** Summary: Communications re IARC - Glyphosate / News in Brief for next week

Dear All,

As discussed yesterday among [REDACTED], [REDACTED], [REDACTED] and myself we think we should publish a NIB once we received the IARC monograph.

[REDACTED] and I had a quick chat today and he is available for drafting the NIB early next week.

According to the Unit, we should receive it next week Wednesday.

Aspects that should be mentioned in the NIB, which should be published on the day we receive the IARC doc:

- EFSA's two mandates (peer review of glyphosate and IARC mandate)
- EFSA received the IARC and will assess it
- EFSA will merge BfR assessment of IARC and its own assessment and integrate **it in the peer review** of glyphosate. EFSA will integrate the assessment of the IARC monograph into the EFSA conclusion on the peer review as referred to in the mandate (link to the RAW: <http://swansea-as1.efsa.eu.int:8080/raw-war/mandateLoader?2> ich hoffe der funktioniert)
- Deadline for sending final conclusion to the EU Commission will be postponed until 30. October (as

agreed by the Commission) EFSA will ask for an extension of the legal deadline, which has to be agreed by COM. It is aimed to finalise the EFSA conclusion including the assessment of the IARC monograph by end of October 2015.

I will try to reach BfR's press office on Monday and find out what kind of communications they are planning. Will give an update. Great!

Please note:

- The Unit said: In case we DO NOT receive the IARC before the end of the month, we publish nothing and go ahead with deadline 13 August (sending to the commission).

We said: if the monograph is will not be available by the end of July, we will stick to the original DL of 13 August 2105 and publish the EFSA conclusion without an evaluation of the IARC monograph.

Have all a good weekend



**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** FW: Glyphosate  
**Date:** 29 July 2015 09:47:06  
**Attachments:** [REDACTED]

---

Dear [REDACTED],

Can you please answer to [REDACTED]?

Thanks a lot,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 28 July 2015 17:26  
**To:** [REDACTED]; [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]; [REDACTED]  
**Subject:** RE: Glyphosate

Dear Both

Thanks for the updates. However, would I be correct in thinking it is practically certain that we will have to take the IARC paper into account – even if this means going back to the Commission at the end of this week/early next week to agree to extend the timeline?

Some other information that I have just learnt today (that you probably already know) that would support the re-scheduling of the deadline is that [REDACTED] recently wrote to MEPs declining an invitation to take part in a debate on glyphosate in September but confirming that EFSA would be happy to do this after the end of October when we had published our glyphosate assessment (see attached).

Best

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 28 July 2015 12:25  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]  
**Subject:** Re: Glyphosate

Dear [REDACTED],

I copy [REDACTED] as he is in the office in case you need further info.

IARC announced they will publish by end of July so we are confident they will. However it is correct that in case they don't publish by end July, we'll have to liaise with EC and it might be

decided we go ahead with the finalisation of the conclusion without the IARC monograph. [REDACTED]  
explained correctly that DE will prepare an addendum to the RAR that will than be peer  
reviewed by EFSA and the other MS.

Best regards,

Verstuurd vanaf mijn iPhone

Op 28 jul. 2015 om 11:11 heeft [REDACTED] <[REDACTED]@efsa.europa.eu> het  
volgende geschreven:

Dear [REDACTED],

As far as I know, the IARC monograph is/will shortly be available and reviewed by  
the RMS Germany in an addendum to the RAR. This means that it will be covered  
by the PRAS conclusion.

I cc [REDACTED] in case I'm wrong or for further details.

Kind regards,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 27 July 2015 17:49  
**To:** [REDACTED]  
**Subject:** Glyphosate  
**Importance:** High

Hi [REDACTED]

Hope you're well. I've just returned from my holidays and wondered if you could  
clarify an issue regarding the peer review of glyphosate.

A couple of weeks ago I had a discussion with [REDACTED] who said that we would  
definitely wait until we had received the paper from IARC so that we could consider  
it as part of our assessment. This means we would not deliver the peer review until  
November / December. (A draft news in brief has already been written and  
approved by PRAS in anticipation of this).

However, I have heard that there is now a possibility that if we don't receive the  
IARC paper soon (this week???) then we may go ahead and publish the peer review  
without it according to the original timeline of Sept.

I'd be grateful if you could confirm so that we can plan communication activities.

Best

[REDACTED]



Risk Communication Unit  
Communications and External Relations  
European Food Safety Authority (EFSA)  
Via Carlo Magno 1A  
43126 Parma, Italy

Tel: [redacted]

Fax: [redacted]

Email: [redacted] [@efsa.europa.eu](mailto:[redacted]@efsa.europa.eu)

Website: <http://www.efsa.europa.eu>

[Follow @efsa\\_eu](#)

From: [REDACTED]  
To: [REDACTED]  
Subject: Re: Glyphosate  
Date: 29 July 2015 15:02:33  
Attachments: [image007.png](#)  
[image008.png](#)  
[image009.png](#)

---

[REDACTED]

[REDACTED]

Op 29 jul. 2015 om 10:23 heeft [REDACTED]  
<[REDACTED]@[efsa.europa.eu](mailto:[REDACTED]@efsa.europa.eu)> het volgende geschreven:

Dear [REDACTED],

There are different scenarios possible regarding the EFSA conclusion on glyphosate:

- <!--[if !supportLists]-->1. <!--[endif]-->The IARC monograph will be available – as indicated – by the end of this month
  - <!--[if !supportLists]-->a. <!--[endif]-->In this case approx. 10 additional weeks are needed
  - <!--[if !supportLists]-->b. <!--[endif]-->EFSA will ask for an extension of the legal deadline of 13 August 2015 and take the IARC findings into consideration
  - <!--[if !supportLists]-->c. <!--[endif]-->The legal deadline will probably be moved to 30 October 2015.
- <!--[if !supportLists]-->2. <!--[endif]-->The IARC monograph will not be available before the expiry of the legal deadline
  - <!--[if !supportLists]-->a. <!--[endif]-->We have to re-consider the situation

I just know by accident that there was an invitation for [REDACTED] to attend the session on glyphosate, but I don't know any details about the letter you are referring to. The PRAS co-ordinators have not been informed.

Let me know, if further information is needed. I am available.

Best regards

[REDACTED]

[REDACTED]  
Scientific Officer  
Pesticides / Regulated Products

<image007.png.secure>

Via Carlo Magno 1A  
43126 Parma (Italy)



Tel. [REDACTED]  
[www.efsa.europa.eu](http://www.efsa.europa.eu)  
[twitter.com/EFSA\\_EU](https://twitter.com/EFSA_EU) <image008.png.secure>  
[youtube.com/EFSAchannel](https://youtube.com/EFSAchannel) <image009.png.secure>

---

**From:** [REDACTED]  
**Sent:** 29 July 2015 09:47  
**To:** [REDACTED]  
**Subject:** FW: Glyphosate

Dear [REDACTED],

Can you please answer to [REDACTED]?

Thanks a lot,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 28 July 2015 17:26  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]  
**Subject:** RE: Glyphosate

Dear Both

Thanks for the updates. However, would I be correct in thinking it is practically certain that we will have to take the IARC paper into account – even if this means going back to the Commission at the end of this week/early next week to agree to extend the timeline?

Some other information that I have just learnt today (that you probably already know) that would support the re-scheduling of the deadline is that [REDACTED] recently wrote to MEPs declining an invitation to take part in a debate on glyphosate in September but confirming that EFSA would be happy to do this after the end of October when we had published our glyphosate assessment (see attached).

Best

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 28 July 2015 12:25  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]  
**Subject:** Re: Glyphosate

Dear [REDACTED],

I copy [REDACTED] as he is in the office in case you need further info.  
IARC announced they will publish by end of July so we are confident they will.  
However it is correct that in case they don't publish by end July, we'll have to liaise with EC and it might be decided we go ahead with the finalisation of the conclusion without the IARC monograph. [REDACTED] explained correctly that DE will prepare an addendum to the RAR that will then be peer reviewed by EFSA and the other MS.  
Best regards,  
[REDACTED]

Verstuurd vanaf mijn iPhone

Op 28 jul. 2015 om 11:11 heeft [REDACTED]  
<[REDACTED]@efsa.europa.eu> het volgende geschreven:

Dear [REDACTED]

As far as I know, the IARC monograph is/will shortly be available and reviewed by the RMS Germany in an addendum to the RAR. This means that it will be covered by the PRAS conclusion.

I cc [REDACTED] in case I'm wrong or for further details.

Kind regards,

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** 27 July 2015 17:49  
**To:** [REDACTED]  
**Subject:** Glyphosate  
**Importance:** High

Hi [REDACTED]

Hope you're well. I've just returned from my holidays and wondered if you could clarify an issue regarding the peer review of glyphosate.

A couple of weeks ago I had a discussion with [REDACTED] who said that we would definitely wait until we had received the paper from IARC so that we could consider it as part of our assessment. This means we would not deliver the peer review until November / December. (A draft news in brief has already been written and approved by PRAS in anticipation of this).

However, I have heard that there is now a possibility that if we don't receive the IARC paper soon (this week???) then we may go ahead and publish the peer review without it according to the original timeline of Sept.

I'd be grateful if you could confirm so that we can plan communication activities.

Best

[REDACTED]

[REDACTED]

[REDACTED]

Risk Communication Unit  
Communications and External Relations  
European Food Safety Authority (EFSA)  
Via Carlo Magno 1A  
43126 Parma, Italy

Tel: [REDACTED]

Fax: [REDACTED]

Email: [REDACTED]@[efsa.europa.eu](mailto:efsa.europa.eu)

Website: <http://www.efsa.europa.eu>

[Follow @efsa\\_eu](#)