

Letter to the Editor Regarding the Article by Paganelli et al.

To the Editor: I would like to focus your attention to some major concerns that I have found while reading the article *Glyphosate-based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling*, by Paganelli et al. (*Chem. Res. Toxicol.* (2010), 23, 1586–1595).

In the Introduction, the authors report that “There is growing evidence raising concerns of GBH (glyphosate) on people living in areas where herbicides are intensively used. Women exposed during pregnancy to herbicides delivered offspring with congenital malformations, including microcephaly, anencephaly, and cranial malformations (3).” In the printed and in the Web versions, the citation corresponds to a report in *Arch. Pediatr. Drug.* There is a typo, as the correct abbreviation of the journal is *Arch. Pediatr. Urug.* This mistake is particularly misleading as it suggests a toxicology journal instead of a local pediatric bulletin written in Spanish. The referred report is a reprint of a study published originally in *Pediatría* (Asunción), a journal from Paraguay. None of these journals is indexed by ISI, nor has an impact factor value. The main concern is not the typo itself. The point is that this article refers to a study in a single hospital in Paraguay showing a correlation between pesticide use (not herbicides as mentioned by Paganelli et al.) and birth malformations. In the cited study (Benitez et al.), the authors state that the results are preliminary and must be confirmed. Is important to remark that the Benitez et al. study does not include any mention to glyphosate, so does not account for what the authors are stating in the Introduction. I assume that the fact that the reference is written in Spanish may have complicated the reviewing process by your journal. This journal is also wrongly cited in the Discussion referring to increased malformations due to herbicides, which is not the result of the study.

Another concern related to improper citations can be found in the Discussion. The authors relate glyphosate use with Genetic Modified Organisms (GMO), when the fact is that glyphosate is a herbicide frequently used in agriculture or even gardening, so the discussion focused on GMO crops is misleading. The authors also cite two references in Spanish to support this argument, but the references provided do not correspond to any peer-reviewed scientific journal but to political literature related to environmentalism. Clearly, the authors' arguments rely on two references lacking the minimal objectivity required for scientific writing. Supporting the discussion on literature unrelated to scientific standards is unacceptable. Again, I believe that the extensive use of Spanish bibliographic sources may have impaired the reviewing process.

I am aware that overinterpretation of results is a common problem in scientific literature, but the article from Paganelli et al., goes far beyond the limit. The experimental results show that glyphosate is teratogenic when injected in vertebrate embryos, but the authors claim that their results give experimental support to an observed environmental problem due to glyphosate. This claim is based on misused citations or nonpeer-reviewed data. This is a major concern as it provides incorrect information to the reader of your journal and clearly does not correspond to a real problem. I have been unable to find any

scientific literature showing a correlation between environmental contamination by glyphosate and teratogeny or birth malformations. Keeping this article in the present form would lead to a lot of confusion to readers of *Chem. Res. Toxicol.*, so I would like to suggest the publication of a correction accounting for the mentioned typo and the extensive misuse of citations in the Introduction and Discussion, supporting conclusions unrelated to experimental results.

Jose M. Mulet

Head of Cell Growth and Abiotic Stress Laboratory

Department of Biotechnology (Division of Biochemistry and Molecular Biology), Institute for Plant Molecular and Cell Biology (IBMCP), Politechnic University of Valencia (UPV), Spain

■ ACKNOWLEDGMENT

J.M.M. is indebted to Prof. L. Yenush for critical reading of this letter.