

Scientific progress in the last decades has been accompanied by an exponential growth of the scientific production, both in printed and electronic science journals. In parallel, there is also a growing concern in the research community (including associations and editors) with ethical transgressions in scientific publications. Although fraud in research has been described since the XIX century, the increasing number of cases described in the literature is noteworthy.

It is worth remembering that the research activity is based on the same ethical values that apply in everyday life, including honesty, fairness, objectivity, openness and respect for others. It is expected, therefore, of the researcher scientific integrity and commitment to the fundamental standards of good scientific practice. The most serious violations of this behavior have come to be known as “scientific misconduct”<sup>1</sup> and can be summarized as follows: Fabrication, Falsification or Plagiarism (FFP) in proposing, performing or reviewing research, or in reporting research results.<sup>2</sup> Other types of serious scientific misconduct include gift authorship, redundant or duplicate publication and disregard to proper citation. The matter has been reviewed recently in an editorial of **Química Nova**.<sup>3</sup> Scientific publication also is based on confidence: in authors for honest and complete reporting of original data produced in ethically conducted research studies; of authors on editors, to choose fair, honest and impartial reviewers to assess their work and of readers that expect an efficient peer review process.

Growth in research fraud has been attributed, at least in part, to greater pressure on researchers to publish at any cost and thus win research grants, promotion and prestige. While fraud in the biomedical sciences has been frequently in the media, quite a few cases of FFP in chemistry have been debunked in the last years.<sup>4</sup> Prestigious journals have been constrained to demand authors to retract fraudulent papers. A recent study by the academic-data provider Thomson Reuters has shown that the number of articles published in peer-reviewed journals over the last 20 years has doubled, but the number of retractions has increased 20 times, possibly due to improved detection systems, especially for plagiarism, such as “*Déjà vu*”,<sup>5</sup> and also because demands on editors to take action against misconduct have been raised.<sup>6</sup>

Is the discovery of fraud in manuscripts submitted for publication the role of journal editors and referees? Peer review is not a fraud detection system. As a consequence of their experience in the field of the manuscript, referees are likely to detect, for example, whether someone else’s

research has been copied. However, deliberate falsification of data cannot be discovered until the paper is published and others in the scientific community try to repeat the work. Furthermore, editors are overwhelmed with large numbers of submissions and tend to rely on the honor system at the heart of scientific activity and therefore of science publishing. Thus, they hardly ever discover any misconduct. How can one deal with the situation? Certainly it is essential that editors and referees be aware of the risk of deception.<sup>7</sup>

Actions to inhibit the publication of fraudulent papers have been taken by several editors of scientific journals, including the **JBCS**, *e.g.*, greater attention to raw data. An additional action that should be embraced by the editors of the **JBCS** is the clarification of the contributions of each co-author. It is also up to researchers, as readers or referees, to inform editors of any misconduct they might detect.

The role of the Brazilian Chemical Society - SBQ in promoting initiatives to help prevent ethical infractions and promote integrity and responsible research conduct is fundamental. For example, it should urgently develop and disseminate a **Code of Ethics** that covers publication ethics, a key element in promoting research integrity. Furthermore, it could sponsor learning opportunities in responsible research for the education of its members, including the development and the publishing of educational materials.

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