

Reaction critical thinking example

[Health & Medicine](#), [Stress](#)



The authors sought to determine if commercially available plastic resin bottles and products, which are advertised as bisphenol a free, actually release chemicals that possess estrogenic activity. The researchers quantified the amount of chemicals, with estrogenic activity, which were leached into saline or ethanol extracts, released by many commercially available plastics. The researchers concluded that many plastics were wrongly characterized as not having estrogenic activity because they were extracted only with one solvent. These materials, the researchers also pointed out, were not exposed to any form of common-use stress.

The authors also announced that they can identify existing compounds, and have developed monomers, additives or processing agents that do not possess any detectable estrogenic activity with similar costs.

The study design was innovative because it explored some new ways of testing the estrogenic activity of some compounds by leaching the chemicals into saline and ethanol extracts. It also exposed the tested materials to common-use stress like microwaving, ultraviolet radiation and autoclaving. This is an innovation because previous researches had not performed the stress tests. The tests were also carried out in vitro meaning that many bottlenecks and confounders that would have been encountered with in vitro testing were eliminated. However, it is also common knowledge that the results of in vitro research and experiments are cannot be directly translated to in vivo situations. The results sometimes vary between the two. In this regard, it may not be right to infer that the significant estrogenic activity detected in these materials in vitro necessarily translates to detectable dangerous levels in vivo. The in vitro detection of estrogenic

activity in certain compounds is definitely likely to overestimate product dangers using in vitro assays because in real life. An extensive study would need to be carried out to determine the actual process of metabolism, distribution and excretion of these metabolites including their actual affinities for estrogen receptors in the body need to be quantified before any pronouncements can be made about their in vivo effect. To date, no research work has been able to prove this; therefore, it is difficult to determine the actual level of these compounds that is dangerous to the body.

Moreover, in the conclusion of the research paper, the authors announced that they could identify existing compounds and have developed materials that have no detectable estrogen action but failed to disclose the actual cost of these materials. Therefore, it is not possible to determine their economic viability.

The research design can be improved by conducting the tests using an in vivo model to increase the acceptability of the result. The observations which the researchers made are clearly limited because it cannot correctly predict human health risk associated with exposure to these compounds because the research was conducted using an in vitro model. Also, in conducting one of the stress tests on the materials, the researchers did not state explicitly the irradiation methods since the methodology could easily influence the outcome of the results. Moreover, some of these materials even have ultraviolet radiation absorption properties thereby reducing the potential for radiation penetrating into the content of the containers. This could lead to confounding findings in this area.

The researchers should also, in future, be explicit about the limitations of

their research so that interpretation of the results would be done with caution, and the limitations in mind. This would guard against misleading unsuspecting reviewers or interpreters of the study.