



## Letter to Editor

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We have read with considerable interest the publication in Indian Journal of Experimental Biology titled “Evaluation of combined efficacy of Astragalus extract, vitamin E, and selenium on lead induced toxicity and apoptosis in rat ovaries” by Şahin M. *et al*<sup>1</sup>. The authors have addressed an important issue of lead-induced ovarian toxicity and for exploring the protective potential of *Astragalus* extract, both alone and in combination with vitamin E and selenium. Lead is one of the most sought environmental pollutants and several therapeutic strategies are being investigated. While the study presents promising findings though several methodological considerations can strengthen its translational relevance. Firstly, the 15 days lead exposure model with 15mg/kg/day is technically considered as a high exposure of lead and perhaps contributes to induction of acute toxicity<sup>2,3</sup>. The study evaluated very short-term outcomes. Long-term assessments for other endocrine disruptions and possible selenium-related toxicity would provide substantial understanding of the lasting effects and safety profile of the intervention. Given selenium’s narrow therapeutic index, monitoring potential toxicity is particularly important<sup>4,5</sup>. The absence of standard systemic toxicity markers is another limitation. Other conventional biochemical parameters such as liver function tests (LFT), renal function tests (RFT), and hematological profiling should be included to support the findings on systemic toxicity and recovery. Further, measurement of serum and ovarian tissue lead levels would have provided direct evidence of exposure to severity and treatment efficacy. A standard positive comparator group for current gold standard EDTA chelation therapy for lead toxicity compared with *Astragalus* extract would also have improved the study design<sup>6,7</sup>. The study design focused on concurrent treatment during lead exposure, preventive (pre-exposure) and therapeutic (post-exposure) models would have been primers to determine whether APS

prevents tissue damage or facilitates reversal of established injury. Given the ovarian focus of the study, controlling for estrous stage is essential to reduce hormonal variability, thus synchronization of the estrous cycle<sup>8</sup> should have been crucial for study findings.

**Keyword:** Lead toxicity, Selenium, Vitamin E, *Astragalus*

### Conflict of interest statement

The authors declare no conflict of interest.

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