

## REVIEWER'S REPORT

Manuscript No.: IJAR-58855

**Title:** Evaluation of the accumulation of heavy metals, including lead and cadmium, in hair samples dyed using both natural and artificial formulations- Aden, Yemen.

### Recommendation:

Accept as it is .....

Accept after minor revision.....

**Accept after major revision .....**

Do not accept (*Reasons below*) .....

| Rating         | Excel. | Good | Fair | Poor |
|----------------|--------|------|------|------|
| Originality    |        | Good |      |      |
| Techn. Quality |        | Good |      |      |
| Clarity        |        | Good |      |      |
| Significance   |        | Good |      |      |

Reviewer's ID: **JPR- 115**

### Detailed Reviewer's Report

#### Recommendation: Major Revision

The manuscript addresses an important public-health issue concerning Pb and Cd contamination in hair-dye products. However, several points require clarification before publication:

1. Very small sample size (n=7) limits the statistical power and generalizability of the findings. This limitation should be clearly acknowledged.
2. The classification of natural, undyed, and synthetic-dyed hair is inconsistent and should be clarified.
3. The authors should provide details on hair washing/decontamination, FAAS calibration, blanks, LOD/LOQ, recovery, and quality control.
4. Several numerical inconsistencies occur between the Abstract, Results, Tables, and Conclusion, particularly for Cd concentrations. These must be carefully corrected.
5. The statistical analysis should report n, mean  $\pm$  SD, test statistics, and exact p-values. The suitability of ANOVA and Pearson correlation with such a small sample should be justified.
6. The HQ calculation and exposure assumptions (especially ingestion rate and exposure duration) require verification and appropriate references.

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7.  $HQ < 1$  should not be interpreted as the product being completely "safe"; it only indicates low estimated non-carcinogenic risk under the assumed exposure conditions.
8. Ethical approval/informed consent for human hair collection should be stated.
9. Claims that synthetic dyes cause higher metal accumulation should be softened to "were associated with higher concentrations," given the cross-sectional design.
10. The manuscript requires substantial English-language editing, consistent units, terminology, product names, and reference formatting.

Overall: The study is potentially valuable, but major methodological and presentation revisions are necessary before acceptance.