

Toxicological Standardization of Heavy Metals and Microbial Contamination Haematinic Herbal Formulations Marketed in India

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Abstract : Background: In India, drugs of herbal origin have been used in traditional systems of medicines such as Unani and Ayurveda since ancient times. WHO limit for Escherichia coli is 101/gm cfu, for Staphylococcus aureus 105/gm cfu, and for Pseudomonas aeruginosa 103/gm cfu and for Salmonella species nil cfu. WHO mentions maximum permissible limits in raw materials only for arsenic, cadmium, and lead, which amount to 1.0, 0.3, and 10 ppm, respectively. Aim: The main purpose of the investigation was to document evidence for the users, and practitioners of marketed haematinic herbal formulations. In the present study haematinic herbal formulations marketed in Yavatmal India were determined for the presence of microbial and heavy metal content. Method: The investigations were performed by using specific medias and atomic absorption spectrometry. Result: The present work indicates the presence of heavy metal contents in herbal formulations selected for study. It was found that arsenic content in formulations was below the permissible limit in all formulations. The cadmium and lead content in six formulations were above the permissible limits. Such formulations are injurious to health of patient if consumed regularly. The specific medias were used to determining the presence of Escherichia coli 4 samples, Staphylococcus aureus 3 samples, and P. aeruginosa 4 samples. The data indicated suggest that there is requirement of in process improvement to provide better quality for consumer health in order to be competitive in international markets. Summary/Conclusion: The presence of microbial and heavy metal content above WHO limits indicates that the GMP was not followed during manufacturing of herbal formulations marketed in India.

Keywords : toxicological standardization, heavy metals, microbial contamination, haematinic herbal formulations

Conference Title : ICPMB 2014 : International Conference on Pharmacy and Molecular Biotechnology

Conference Location : Singapore, Singapore

Conference Dates : July 05-06, 2014