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## SCOPING REVIEW ON BIOMEDICAL FERMENTATIONS AND GREEN NANO TECHNOLOGY OF BASNA PREPARATIONS IN SRI LANKAN TRADITIONAL MEDICINE FOR IRON DEFICIENCY ANEMIA

Pathirana LC<sup>1\*</sup>, Perera PK<sup>2</sup>, Rohini M. de Silva<sup>3</sup>, Nalin de Silva KM<sup>3</sup>

<sup>1</sup> Faculty Graduate Studies, University of Colombo,

<sup>2</sup> Institute of Indigenous Medicine, University of Colombo,

<sup>3</sup> Faculty of Chemistry, University of Colombo

[lakmalipathirana91@gmail.com](mailto:lakmalipathirana91@gmail.com)

Traditional medicinal systems are being practiced as successful treatments for many diseases over centuries in many countries especially in Asia. Sri Lankan Traditional medicine (STM) has biomedical fermentation; *Basna Kalpana* which is less explored and explained in terms of scientific concepts. A comprehensive search of the literature was conducted in PubMed, ScienceDirect and Google Scholar databases from the articles which was published from the year 2000 January to May 2021 using the terms, nanoparticles, herbal medicine, ayurvedic medicine, traditional medicine, green synthesis, fermentation and biomedical. Total 222 Research articles met with the inclusion criteria out of 1053 related articles. Scoping review of the selected studies was conducted under the Scientific concepts/definitions, key characteristics of the concepts/definitions and the boundaries. *Basna Kalpana* was mostly applied for diseases based on its nutritional values like anemia. Ayurvedic Arista-Asawa has enhanced therapeutic effects due to microbial biotransformation of the initial ingredients into more effective alcohol-aqueous milieu. Furthermore, this medium improved shelf-life, pharmacodynamics and pharmacokinetics effects of the drug. Likewise, the biomedical fermentations have been studied for its comprehensive immunological enhancement and inhibition of pathogenic bacteria, negligible side-effects, and inappreciable drug-resistance. It was explained that probiotic fermentation in those Chinese herbal fermentations facilitates the release of the active ingredient and reduces toxicity. All other enzymatic benefits enable synergetic effect and therefore, enhance efficacy of the drug. Green nano materials are mediated mostly by microorganisms and herbal extracts. The capability of the microorganisms was known for many chemical reductions of metal and metal ions. Bio-mediated-iron oxide nanoparticles have shown increased cellular uptake, reduced toxicity, high safety and efficacy and bioavailability as an effective iron supplement. This review covered the recent progress in biomedical fermentation and green nanotechnology on explaining the *Basna* preparations in nutritional values, and the possible mechanism of enhancing potency in the pharmaceutical aspect.

**Keywords:** Biomedical fermentation, Sri Lankan, Traditional