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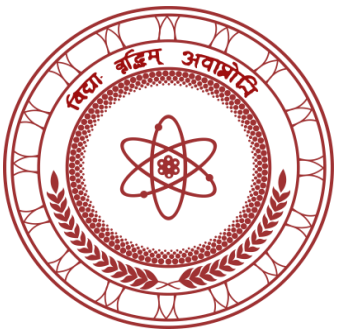

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Experimental design, development, and standardization of an oral rehydration powder using herbal decoction

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A decoction (Kashaya) called Shadanga Panaya that comprises six components as outlined in Ayurveda has been utilized by physicians to address fever, thirst, detoxify the blood (Raktapitta), alleviate sweating and burning sensations in the body during urination, and treat conditions like diarrhea and vomiting that lead to dehydration. It has also been used to manage symptoms of COVID-19. In the absence of any established standardization and quality parameters, this experiment was carried out to prepare a Shadanga Panaya herbal decoction, using standardization procedures, establishing standardization & quality parameters, and using an experimental design to develop it as an oral rehydration powder using herbal decoction. The development utilized a drying process, solubility characteristics, and important standardization tests which were performed under WHO-2012 guidelines. The spray-dried product was developed by adding only filler without any excipient. The organoleptic properties encountered ayurvedic standards. Phytochemical analysis indicated the presence of carbohydrates, flavonoids, saponins, glycosides, and phenols. Thin layer chromatography (TLC) showed separation in the aqueous extract of each raw material of Shadanga Panaya using a solvent system of glacial acetic acid: chloroform: acetone (1:15.2:3). A comparative TLC study revealed identical components between the developed Shadanga Panaya powder and its ingredients. The specific gravity was 1.0085, the pH was 6.70 and the refractive index was 0.1 for the solution of the developed powder. Electrolytes composition of developed Shadanga Panaya solution was, Na^+<1 mmol/L, K^+ = 1.5 mmol/L and Ca^{2+}<0.2 mmol/L. The pH and the electrolyte composition of the product did not meet the UNICEF and WHO standards for Oral Rehydration Solutions and will be adjusted in subsequent research. This new approach, along with the standardization and evaluation of standard operating procedures, aims to develop Shadanga Panaya as a convenient Oral Rehydration Powder, highlighting its potential for innovation and improved treatment outcomes in future healthcare.

Keywords: Herbal powder standardization, oral rehydration therapy, Shadanga Panaya, spray dryer

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