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DEVELOPMENT OF QUALITY STANDARDS OF VATARI CHURNA: A POLYHERBAL FORMULATION

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ABSTRACT

Keywords:

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India is a landmark for traditional system of medicine from past few centuries. Most of the medicines are effective but only one major drawback is lack of standardization. So, there is a need to develop a standardization technique to mingle this system of medicine in the main stream of health science. Standardization of herbal formulations is essential in order to assess the quality of drugs, based on the concentration of their active principles. The present work is an attempt to standardize Vatari Churna, a traditional formulation, used in rheumatoid arthritis. Marketed and in-house preparation was used for the study. The various parameters performed included organoleptic characteristics, physical characteristics physicochemical. The results obtained may be considered as tools for assistance to the regulatory authorities, scientific organizations and manufacturers for developing standard formulation of great efficacy.

INTRODUCTION: Churna is a fine powder of a drug or drugs which is prepared by mixing clean, finely powdered and sieved drugs. vatari churna shows its effects mainly on rheumatoid arthritis which contains fenugreek(seed), ginger(a rhizome rather than a root), ashwagnadha(*root*), kutki(rhizome), vidhara(*root*). Practitioners usually do the identification of different herbs used in vatari churna according to Ayurvedic parameters¹.

The preparation of vatari churna is based on traditional methods in accordance with the procedures given in classical texts². Due to lack of modern pharmacopoeial standards laid down and followed for processing of vatari churna, the medicine prepared using traditional methods may not have the desired quality and batch to batch consistency. Hence this formulation required standardization according to guidelines given by World Health Organization (WHO)³.

MATERIALS AND METHODS

Plant material: Following herbal drugs were chosen: Fenugreek (seed), ginger (a rhizome rather than a root), *Withania somnifera* (root), kutki (rhizome), vidhara (root). All five herbs were procured from local market of Dehradun and were authenticated by Department of botany F.R.I. Dehradun, Uttarakhand, India.

Preparation of Polyherbal formulation: All the procured and authenticated individual drugs were dried in shade and cleaned by hand sorting. The individual drugs were then crushed using willing grinder and passed through mesh no. 40. The individual drugs were then weighed as per the quantity required. The drugs were mixed geometrically using a double cone blender. The mixed formulation was unloaded, weighed, and packed in labeled plastic bags⁴.

Physicochemical properties: Organoleptic and Physiochemical studies like water soluble extract, alcohol soluble extract, ether soluble extract, hydroalcoholic soluble extract, total ash, water soluble ash, acid insoluble ash, water, moisture constant at 105°C, bulk density, tap density, Hausner's ratio, Carr's index ph of suspension were carried out as per the WHO guide lines^{5,6}.

RESULTS AND DISCUSSION: The Vatari Churna polyherbal formulation was slightly brown colored, bitter in taste and a characteristic bitter odor. Physiochemical parameters of herbal formulation are tabulated in **Table 1**. Degradation and deterioration by fungus depends upon the amount of water present in plant material. If the water content is high it occurs. The loss on drying at 105°C in formulation was found to be 5.10 %. Total ash value of plant material indicated the amount of minerals and earthy materials present in the plant material. Analytical results showed total ash value of 12.40 %. The amount of acid-insoluble siliceous matter present in the plant was 0.9 %. The water-soluble extractive value indicated the presence of sugar, acids and inorganic compounds.

Less or more extractive value indicates addition of exhausted material, adulteration or incorrect processing during drying, or storage or formulating^{7,8}. The water-soluble extractive value was found to be 5.4 %. The alcohol-soluble extractive value was found to be 11.8 %. The ether soluble extractive value was determined of the formulation and it was found to be 6.5%. The hydro alcoholic value of the formulation was also determined and it was found to be 9.6%.

Tapped density gives information on consolidation of a powder. The bulk density of the polyherbal formulation was found to be 0.315 g/ml and the tapped density was found to be 0.441 g/ml⁹. The Hausner's ratio and Carr's index are both measures of the flow properties of powders. The smaller the Carr's Index the better the flow properties.

The Carr's Index and Hausner's ratio for the polyherbal formulation were found to be 28.5% and 1.4 respectively. The observed pH values of 1% and 10% suspensions of the formulation were found to be 5.6 which indicate suitability for human use¹⁰.

TABLE 1: DIFFERENT PHYSIOCHEMICAL PARAMETERS

S. No.	Parameters	Marketed formulation	In home formulation
1.	Water soluble extractive value	0.85%	0.905%
2.	Alcohol soluble extractive value	0.575%	1.475%
3.	Ether soluble extractive	0.23%	0.31%
4.	Total Ash	5.5%	13%
5.	Acid insoluble Ash	11%	9%
6.	Water soluble Ash	3.2%	2.8%
7.	Carbonated Ash	4.1%	3%
8.	Sulfated Ash	13%	11%
9.	Nitrated Ash	2%	2%
10.	Bulk density	14 m/v	13 m/v
11.	Tapped density	07 m/v	09 m/v
12.	Carr's index	31.2%	28.1%
13.	Hausner's Ratio	0.5	0.069

CONCLUSION: The results of the present study clearly indicate that there is no uniformity in preparation of formulations. It may be due to varied geographical location where these plants grow, coupled with the problem of different vernacular names of these plants known by, a great deal of adulteration or substitution is encountered in commercial market¹¹. It might be a useful contribution to the selection of an appropriate formulation in the clinical practice and hence, effective rational therapy, the overall theme of the health

science. So further, it can be studied for comparative pharmacological evaluation.

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