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Original Research Article

Evaluation and Standardization of Herbal Extract of *Carum Copticum*

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Abstract:
Plants are important and supplementary sources of drugs and Dietary. It can provide biologically active molecules which are used for treatments of different types of disease. The history of the medicinal plants is so important which explain the continuity and importance of medicated plants from generation to generation where and how it was discovered and who observed the medicinal importance in different era because the plants provide biologically active and important molecules that can be used for treatment of different disease. The present study was designed for the evaluation of herbal extracts for effective selection of plant material, standardization and extraction.
Keywords: Extracts, Standardization, Extraction.

Introduction

Herbal drugs imply knowledge and practice of herbal healing for the prevention, diagnosis, and elimination of physical, mental, or social imbalance. The costs for health care are rising at an alarming rate throughout the world. At the same time, the world market for phytopharmaceuticals is growing progressively. The World Bank estimates that trade in medicinal plants, botanical drug products, and raw materials are growing at an annual rate of between 5 and 15 %. It is a common observation that people diagnosed with incurable chronic disease states such as diabetes, arthritis, and AIDS turned to herbal therapies for a sense of control and mental comfort from taking action. [1] Herbal product studies cannot be considered scientifically valid if the product tested has not been authenticated and characterized in order to ensure reproducibility in the manufacturing of the product in question. Standardized herbal products of consistent quality and containing well-defined constituents are required for reliable clinical trials and to provide consistent beneficial therapeutic effects. Pharmacological properties of an herbal formulation depend on phytochemical constituents present therein. Development of authentic analytical methods which can reliably profile the phytochemical composition, including quantitative analyses of marker/bioactive compounds and other major constituents, is a major challenge to scientists. [2] Without consistent quality of a phytochemical mixture, a consistent pharmacological effect is not expected. Medicinal herbs as potential source of therapeutics aids has attained a significant role in health system all over the world for both humans and animals not only in the diseased condition but also as potential material for maintaining proper health. [3] Research to find

out scientific evidence for claims by tribal healers on Indian herbs has been intensified. The present study was designed for the development and evaluation of herbal extracts for effective selection of plant material, standardization and extraction.

Experimental work

Collection of plant material

The plant leaves of *Carom Copticum* were collected from available graphical sources. The plant drugs were identified, collected and stored for further use.

Preparation of plant extracts

The plant leaves powder of the *Carom Copticum* were extracted with ethyl acetate, methanol and water using as solvent respectively. A total of 50gm of individual plant powder of the *Carom Copticum* was taken and mixed with 250 ml distilled water (1:5) in a round bottom flask and gentle refluxed for 1½ hour separately. The residue was removed by filtration through Whatmann No. 1 filter paper and the aqueous extract was concentrated used on a Rotary evaporator to get solid yield extract.

Physicochemical Investigations

Samples of plant powder of *Carom Copticum* were subjected for determination of physicochemical parameters such as loss on drying, ash values, pH value in 1%, aqueous and methanolic extractive values were carried out according to the methods recommended [4, 5, 6]

Determination of pH range

The pH of different formulations in 1% w/v (1g: 100ml) of water soluble portions of plant powder of *Carom Copticum* were determined using standard simple glass electrode pH meter.

Loss on drying

Separately place about 1.0g of whole plant powder of the *Carom Copticum* in an accurately weighed moisture disc. For estimation of loss on drying, it was dried at 105°C for 5 hours in an oven, cooled in a desiccator for 30 minutes, and weighed without delay. The loss of weight was calculated as the content in mg per g of air-dried material.

Determination of total ash

Two grams of the whole plant powder of the *Carom Copticum* was placed in a previously ignited (350°C for 1 hour) and tarred crucible accurately weighed. Dried material was spread in an even layer in the crucible and the material ignited by gradually increasing the heat to 550°C for 5 hours in a muffle furnace until it is white, indicating the absence of carbon. Cooled in a desiccator and weighed. Total ash content was calculated in mg per g of air-dried material.

Determination of acid-insoluble ash

Twenty- five (25) ml of hydrochloric acid (~70g/l) TS was added to the crucible containing the total ash, covered with a watch-glass and boiled gently for 5 minutes. The watch-glass was rinsed with 5 ml of hot water and this liquid added to the crucible. The insoluble matter was collected on an ash less filter-paper (Whatmann 41) and washed with hot water until the filtrate was neutral. The filter-paper containing the insoluble matter was transferred to the original crucible, ignited by gradually increasing the heat to 550°C for 3 hours in a muffle furnace to constant weight. Allowed the residue to cool in a suitable desiccator for 30 minutes, and then weighed without delay. Acid-insoluble ash content was calculated as mg per g of air dried material.

Determination of water-soluble ash

Twenty- five (25) ml of water was added to the crucible containing the total ash, covered with a watch glass and boiled gently for 5 minutes. Insoluble matter was collected on an ash less filter-paper. Washed with hot water and ignited in a crucible for 15 minutes at a temperature not exceeding 450°C in a muffle furnace. Allowed the residue to cool in a suitable desiccator for 30 minutes, and then weighed without delay. The weight of the residue was subtracted in mg from the weight of total ash. Water-soluble ash content was calculated as mg per g of air-dried material.

Results and Discussion

Physicochemical Investigations

Physicochemical parameters were determined as per guidelines of WHO, air dried coarse powdered sample of *Carom Copticum* was subjected for determination of physicochemical parameters such as pH, foreign organic matter, methanol soluble extractives, water soluble extractives, total ash content, acid insoluble ash, water soluble ash, loss on drying and % moisture content were determined. The Average physicochemical parameters of the *Carom Copticum* course powder are tabulated in table 1.

Extraction of plant Drug

The plant leaves powder of the *Carom Copticum* were extracted with ethyl acetate, methanol and water using as solvent respectively. The solvent was removed and practical yield was found and recorded. The findings were tabulated in table 2.

Table 1: Physicochemical Parameters of *Carom Copticum plant*

S.N.	Parameters	Values
1	pH range	3.25±0.01
2	Loss on drying	8.20±0.10
3	Methanol soluble extractive value	15.56±0.20
4	Water soluble extractive value	13.20±0.50
5	Total ash value	4.25±1.10
6	Water soluble ash	2.10±0.05
7	Acid insoluble ash	1.35±0.20
8	Sulphated ash	1.20±0.10

Table 5.3: Extractive values of *Carom Copticum*

Solvent	Yield (g)	% Yield
Ethyl acetate	2.5	5%
Methanol	2.0	4%
Water	3.5	7%

Conclusion

Medicinal plants are considered as rich resources of ingredients which can be used in drug development either pharmacopoeial, non-pharmacopoeial or synthetic drugs. Some plants and their derivatives are considered as important source for active ingredients which are used in various pharmaceutical products. The generated results of the present study will provide data which is helpful in the correct identification and authentication of this medicinal plant and may help in preventing its adulteration.

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