DETECTION OF ACORUS CALAMUS IN AYURVEDIC PREPARATIONS

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Received: 5 January, 1995 Accepted: 20 June, 1995

ABSTRACT: Standardization of ayurvedic drugs has become necessary as in all other walks of life. This paper deals with the detection of Acorus calamus in Ayurvedic preparations. It is one of the most commonly used ingredients in ayurvedic preparations. This layer chromatographic technique was used for detection. Two solvent systems were developed and the spots were visualized in iodine vapour. The spot of Rf 0.85 in I and 0.70 in (ii) obtained for Acorus calamus was present in all the finished products, taken thus showing the present of Acorus calamus in the finished products. Co. T.L.C. was done to confirm the observation. This was further confirmed by testing o market samples containing Acorus calamus.

INTRODUCTION

Ayurveda is an ancient system of medicine of rich heritage. In olden days it was practiced by the vaidyas as a service to mankind. Due to its high efficacy people had faith in it and it was followed by the rich and the poor alike. In this system, medicines prepared with one or more plant materials are used against specific diseases through knowledge derived from classical treatises, passed down from one generation to another. The efficacy of the system was kept up, as the vaidyas themselves collected and prepared the medicines for their own patients. This state of affairs has started changing due to commercialization. This in turn led to production of substANDARD and spurious medicines, where one or more of ingredients was often omitted or adulterated. As a result people started losing faith in this ancient system of medicine and started resorting to the use of modern medicines for their ailments. As the harmful side effects of these newly isolated and synthetic drugs came to surface, people again started preferring natural medicament in place of modern medicine. To restore the faith of people and to obtain the quality of medicines, it has become necessary to evolve drug standards by which quality of a medicine could be judged, which will in turn provide necessary tools for an enforcement agency to check and ensure the quality of medicine. Such an effort can in great deal help to bring back the faith in our ancient heritage. In the present study an attempt has been made to detect the present of Acorus calamus in Ayurvedic preparations. It’s roots and rhizome are stimulant, emetic, stomachic, aromatic, expectorant, carminative, an antispasmodic and nerve sedative and also as antiperiodic. The rhizomes show expectorant action due to the presence of essential oils. Though detailed study of acorus calamus had been carried out no work has so far been reported to detect it’s presence in ayurvedic preparations.
MATERIALS AND METHODS

The officinale part (rhizome) of the plant was collected and pharmacognostically identified. Chemicals used were of AR. Grade. Chromatographic method was used for the detection. Thin layer chromatography was done using silica Gel G plates activated at 110 oC. Iodine vapour was used for visualization. Ayurvedic medicines used for the study were prepared in the laboratory by an Ayurveda doctor.

RESULTS AND DISCUSSION

For the study samples were selected from various types of preparations such as choornam, ghritham, tailam, kashayam, etc. and were prepared following Sahasrayoga. The finished products selected were also prepared omitting acorus calamus for comparative studies. Separate method was followed for each case. Tailam and ghritham were saponified and unsaponifiables were taken for T.L.C study. In the case of choornam 3 gms of choornam was refluxed with 25 ml. of ethanol for 3 hours. The extract was filtered and concentrated and used for T.L.C study. Alcohol extract, oil soluble and ghee soluble of acorus calamus were also taken.

For kashayam, the prepared Kashayam was filtered and shaken with ethyl acetate and ethyl acetate extract was taken. The solvent was distilled off and solute was taken for T.L.C. studies. Several solvent systems were tried and two systems which gave best results were selected-benzene : Chloroform 50 : 70 (1) Cyclohexene : ethyle acetate 4 : 1 (2)

For tailam and ghritham the unsaponifiables of the samples were spotted along with unsaponifiable matter of oil soluble and ghee soluble of acorus calamus and the unsaponifiable matter of the drug prepared omitting acorus calamus. Results are given in Table – 1.

For choornam the alcohol extract of the drug was spotted along with alcohol extract of acorus calamus alone and alcohol extract of the drug without acorus calamus.

For kashayam the ethylacetate extract of kashayam was dissolved in ethanol and spotted along with alcohol extract of acorus calamus and extract of Kashayam prepared acorus calamus.

The single spot obtained in both the solvent systems ( I and II) for the alcoholic extract of acorus calamus was present in the unsaponifiable matter of ghee soluble and oil soluble of acorus calamus. This shows that the compound present in the alcoholic extract of acorus calamus comes into the ghee soluble and oil soluble of acorus calamus. Since the different finished products taken for the study gave the same spot of Rf 0.85 (I) and 0.70 (II), this compound can be assumed to be present in all the finished products taken for the study. This is further confirmed by the fact that this single spot was absent in the finished products prepared omitting acorus calamus. These spots of same of Rf obtained from different finished products were scrapped and mixed and extracted with ethanol (1). A portion of this extract was mixed with alcohol extract of acorus calamus (2). These two extracts ad the alcohol extract of acorus calamus were spotted in the sample plate. All three gave same spot of same Rf, then showing that the spot obtained for ayurvedic medicines, is due to the presence of the compound present in acorus calamus. Thus this can be considered characteristics of acorus calamus and the presence of this characteristic spot in finished products
confirms the presence of *acorus calamus* in the medicine.

This method developed was then tested on a variety of ayurvedic medicines. Samples of medicines containing *acorus calamus* were kindly supplied by Ayurveda Research and Consultancy Services, Trivandrum. All these medicines gave positive results (Table II). This again confirms the validity of the method evolved.

**CONCLUSION**

In ayurvedic preparations; the omission of an ingredient or use of adulterants not only reduces the efficacy of the drug to a great extent, but some times also renders it is harmful to health. In this context any parameter evolved to detect the presence of an ingredient in a preparation goes a long way in ensuring the quality of medicine. Though usually only costly / rare drugs are omitted or adulterated, it is not uncommon for a commonly available drug to be omitted or adulterated. In short, standardization of an ayurvedic medicine is a must, so as to make this ancient system of Indian medicine an International system of medicine for imparting good health and happiness to all.

**ACKNOWLEDGEMENT**

We express our sincere thanks to Dr. S. Vijayalakshmy, Research Offier (Ay) D.S.U. for preparing all the ayurvedic medicine required for this work. We are also grateful to Ayurvedic Research and Consultancy service, Thiruvanthapuram for kindly supplying the ayurvedic preparations for this work. Authors are also thankful to Prof. N. Lakshmy, Prof of Pharmacognosy and Dr. B. Saileswari Amma, Principal, Ayurveda College, Thiruvanthapuram for providing the facilities for this work.

**TABLE – I**

| S. No | Sample | Solvent System |
|-------|--------|----------------|
| 1     | *Acorus calamus* | I II |
| 2     | Manjishtadi Kashayam | 85 70 |
| 3     | Manjishtadi Kashayam Omitting A.C | Nil Nil |
| 4     | Darviguluchyadi Kashayam | 85 70 |
| 5     | Darvigulichyadi Kashayam Omitting A.C | Nil Nil |
| 6     | Vilwapatra Tailam | 0.85 70 |
| 7     | Vilwapatra Tailam Omitting A.C | Nil Nil |
| 8     | Kalyanaka Choornam | 0.85 70 |
| 9     | Kalyanaka Choornam Omitting A.C | Nil Nil |

A.C. = *Acorus Calamus*
## TABLE-II

| S. No | Sample                                | Solvent System |
|-------|---------------------------------------|----------------|
|       |                                       | I  | II    |
| 1     | Acorus calamus                        | 0.85 | 0.70 |
| 2     | Haritha tailam                        | 0.85 | 0.70 |
| 3     | Yogabala tailam                       | 0.85 | 0.70 |
| 4     | Marmabala tailam                      | 0.85 | 0.70 |
| 5     | Sindhubhringadi keram                 | 0.85 | 0.70 |
| 6     | Pripalayadi tailam                    | 0.85 | 0.70 |
| 7     | Sameera sammardana tailam             | 0.85 | 0.70 |
| 8     | Nimbamrutadi enna                     | 0.85 | 0.70 |
| 9     | Gridhoomadi lepa choornam             | 0.85 | 0.70 |
| 10    | Chandraprabha gulika                  | 0.85 | 0.70 |
| 11    | Kastooryadi gulika                    | 0.85 | 0.70 |
| 12    | Patolanimbadi gulika                  | 0.85 | 0.70 |
| 13    | Kalyanaveleham                        | 0.85 | 0.70 |
| 14    | Sudarshana gulika                     | 0.85 | 0.70 |
| 15    | Manasamitram                          | 0.85 | 0.70 |
| 16    | Prabhanjana Vimardanamkuzhampu         | 0.85 | 0.70 |
| 17    | Vachadi keram                         | 0.85 | 0.70 |
| 18    | Bala korandadi kuzhampu               | 0.85 | 0.70 |
| 19    | Kottam chukkadi kuzhampu              | 0.85 | 0.70 |
| 20    | Saraswatha ghritham                   | 0.85 | 0.70 |
| 21    | Gugguluthikthaka ghritham             | 0.85 | 0.70 |

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