STUDIES ON SOME SOUTH INDIAN MARKET SAMPLES OF AYURVEDIC DRUGS - II

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ABSTRACT: This paper is the second in the series and deals with the ayurvedic drugs 1) *Vidari*, 2) *Nagakesara*, 3) *Priyangu*, 4) *Sathi* and 5) *Srngi*. The S. Indian market samples are evaluated which will help in gainful exploitation of the species other than the accepted source, and also solve, to a certain extent the controversial drugs issue of these drugs.

Introduction:

In the previous paper (Vasudevan Nair *al*, Ancient Science of life Vol 2-2. P. 71-78 1982), the importance of studies on market samples of crude drugs has been discussed in detail. The controversies on ayurvedic drugs resulting in different botanical sources and the utilisation of the market samples on the lines suggested earlier (Vasudevan Nair *al*,[1] 1982) will be helpful to enrich the dwindling ayurvedic materia medica. In the present paper, five drugs viz., 1. *Vidari*, 2. *Nagakesara*, 3. *Priyangu*, 4. *Sathi* and 5. *Srngi* have been taken for detailed studies. The botanical identity, selected applicable ayurvedic synonyms, uses and chemical constituents of all the botanical sources of the drugs sold and used in the S. Indian markets are discussed with a mention of the accepted source.

Materials and Methods:

The materials and methods are the same as adopted earlier (Vasudevan Nair *al*[1] 1982). The accepted source is with reference to the *Ayurvedic Formulary - Part I* (Anonymous[2] 1976), the āyurvedic synonyms are taken from *Bhavaprakasa nighantu* (Chunekar and[3] Pandey 1969), the ayurvedic preparations and uses are obtained from *Astanga Hrdaya* (Gupta[4] 1962), the chemical constituents and uses are gathered from *The Wealth of India* (Anonymous 1948, 1950, 1959, 1962, 1969, 1972, 1976, 1976a) and following Chopra *al*, (1956). The crude drug samples of the accepted source and the market samples are preserved at the Museum of the RRCBI. For each drug the accepted source, different botanical sources, part used, applicable ayurvedic synonyms, botanical description, uses, distribution, chemical constituents for each of the plant involved are provided. In addition to this, the photographic illustration of the accepted source of the crude drug and the market samples of S. India is also appended.

Elucidation of Drugs:

1. **Vidari:** *Vidari* is an important ayurvedic drug used in preparations like *Vidaryadi grta, Jivaniyagana*. The underground tuberous roots of the plant *Pueraria tuberosa* DC; (Fabaceae) is used as the drug and is the accepted source (Fig. 1). The other plants from which *Vidar* is derived are 1. *Adenia hondala* (Gaertn.) de Wilde, (=*Modecca palmata* Lam.) (Passifloraceae), 2. *Ipomoea paniculata* R. Br., (= *I. digitata* L.) (Convolvulaceae) and 3. *Cycas circinalis* L., (Cycadaceae).

In the S. Indian marktes, *P. tuberosa* is not sold. In the markets of Kerala, the

spherical, large tubers of a member of Passifloraceae is cut into small pieces and sold which is used by the physicians; this is identified botanically as the tuber of *Adenia hondala* (Fig. 2) which is considered (Fig 2) as *Krsna Vidari* due to the synonyms *Alpaksira* and *Hasthi padaka;* this plant is locally known as *Karimuthakku* (Malayalam),

The tubers of *I. paniculata* R. Br., are cut into small pieces and used as *Ksira Vidari* in the markets of Andhra Pradesh and Kerala. The synonyms *Bahuksira* and *Dirgha kanda* (elongated tubers) are applicable to this plant which is locally known as *Palmuthakku* (Malayalam), (Fig.3).

Observations made in Karnataka and Tamil Nadu have revealed that a non–flowering Gymnospermous plant *Cycas circinalis* L., (Cycadaceae) is used as *Vidari.* The woody stem portion of the plant is decorticated and the white central core is cut into small square pieces and marketed as the drug (Fig. 4).

Vidari is used in the treatment of *Vatapittaja roga,* and also as a good *Brihmhani drug. Ksira vidari* is particularly prescribed as sthanya Janaka and *Sukrada* (personal observation).

Botanical description

1. **Adenia hondala** (Gaertn.) de Wilde (Passifloraceae). Woody tendril bearing climbers. Leaves deeply and palmately 3–5–lobed, usually with large glands at sinuses and base. Flowers unisexual, in axillary cymes; peduncles often produced into tendrils. Fruits large, oblong, 3–valved, orange.

Distributed in Konkan, N. Kanara, hills of Carnatic, W. ghats, and W. coast.

Roots and fruits are toxic; juice of leaves and roots used externally for skin diseases.

2. **Ipomoea paniculata** R. BR. (Convolvulaceae) Extensive climbers with large tuberous roots and palmately 5–7–lobed large leaves. Flowers pink or red purple, in axillary corymbs.

Chiefly occur throughout tropical India in moist regions.

Roots considered as tonic, alterative, aphrodisiac, demulcent, lactagogue, purgative, cholagogue; useful in fevers and bronchitis; powdered root is given for diseases of the spleen and liver, for menorrhagia, debility and in fat accumulation.

3. **Cycas circinalis** Linn. (Cycadaceae) Dioecious 6 m or more tall, palm–like leaved non–flowering plant. The male plant bear the male cone terminally and the female plant bear globose large fruits.

Chiefly occur wild in S. India.

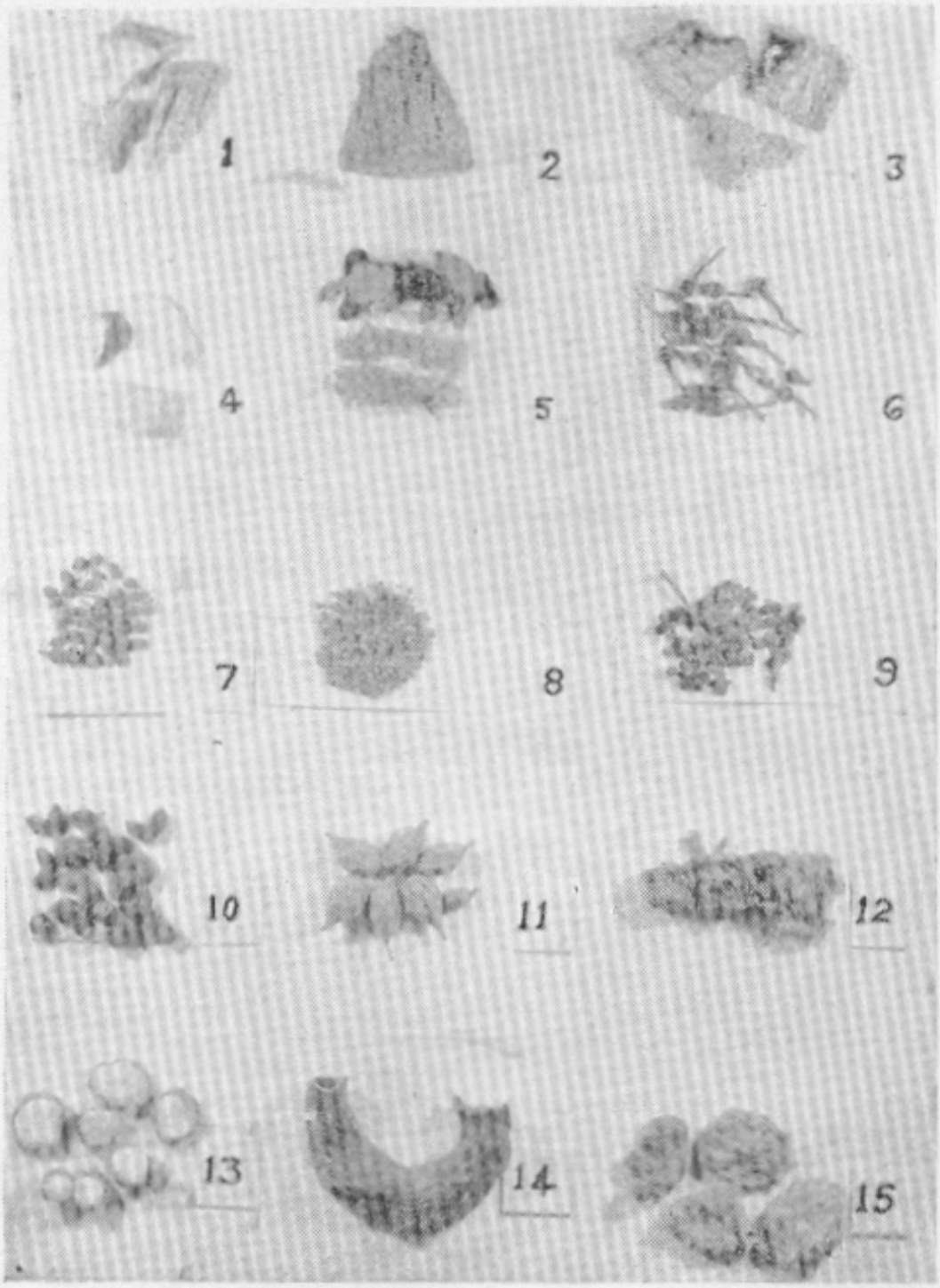
Seeds contain starch, a toxic glucoside pakoein, phytosterin and a reducing sugar.

II. **Nagakesara:** The anthers of *Mesua ferrea* L., (Clusiaceae) is the accepted source of the drug (Fig. 5). Three other sources from 1. *Calophyllum inophyllum* L., (flowers) (Clusiaceae) 2. *Cinnamomum wightii* Meissn., (fruits with peduncle), (Lauraceae) and 3. *Myristica fragrans* Houtt., (male flowers) (Myristicaceae) are used in S. India. The flowers of *C. inophyllum* are in vogue by selected physicians of Kerala, the fruits of *Cinnamomum wightii* (Fig. 6) in all the four states of S. India, while the male flowers of *Myristica fragrans* (Fig. 7) is employed in the preparations in Tamil Nadu mostly by Siddha physicians. The material of *C. wightii* is found often intermixed with other species of *Cinnamomum* genus.

The synonyms *Naga kesara, Naga puspa, Kesara* suit more aptly with *Mesua ferrea* since the basic part used is *Kesara* (anthers). The anthers of *Nelumbo nucifera* Gaertn., *(Kamala)* of Nymphaeaceae is also mixed with *M. ferrea* which however can be easily detected by its large size. In the market, *Nagakesara* is found comprising of the anthers and the perianth parts.

Nagakesara is used as one of the ingredients in preparations like *Draksarista, Jivantyadi curna;* it is applied in treatment like *kaphaja roga, amapachana, kushta.*

The correct name for the Indian plant used as Nagakesara *(Mesua ferrea)* is now established as *Mesua nagassarium* (Burm.f.) Koster., (Saldanha & Nicolson 1978).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Explanation of Figures

Figures 1 – 4 : Accepted and other sources of *Vidari*, (crude drugs).

1. *Pueraria tuberosa;*
2. *Adenia hondala;*
3. *Ipomoea paniculata;*
4. *Cycas circinalis.*

Figures 5 – 7 : Accepted and other sources of *Nagakesara* (crude drugs).

5. *Mesua ferrea;*
6. *Cinnamomum wightii;*
7. *Myristica fragrans.*

Figures 8 – 10 : Accepted and other sources of *Priyangu* (crude drugs).

8. *Callicarpa macrophylla;*
9. *Callicarpa tomentosa;*
10. *Zanthoxylum rhetsa;* 11. *Ziziphus* species.

Figures 12 – 13 : Accepted and other source of *Sathi* (crude drugs).

12. *Hedychium spicatum;*
13. *Kaempeferia galanga.*

Figures 14 – 15 : Accepted and other source of *Srngi* (crude drugs).

14. *Pistacia integerrima;*
15. *Terminalia chebula.*

Botanical description

1. **Calophyllum inophyllum** Linn. (Clusiaceae) Moderate–sized evergreen glabrous trees with opposite coriacieous leaves, bearing numerous parallel nerves. Flowers polygamous, fragrant.

Distributed in coastal region of S. India. Andamans, cultivated throughout India as an ornamental tree.

Bark astringent, used in internal haemorrhages; leaves used in fish poison; juice as purgative; gum is emetic and purgative; oil of seeds specific for skin diseases and for application in rheumatism; kernels yield oil; bark contains tannin; leaves contain saponin and hydrocyanic acid.

The dry flowers which are white when fresh and turn brownish on drying form the drug of commerce.

2. **Cinnamomum wightii** Meissn. (Lauraceae) Moderate–sized trees. Leaves fragrant, coriaceous, 3–5–7 ribbed, broadly ovate; flowers white, in short, compact, long peduncled panicles. Berries oblong, seated on truncate calyx cup.

Distributed chiefly in W. ghats.

The fruiting inflorescence are sold as the drug.

3. **Myristica fragrans** Houtt. (Myristicaceae) Dioecious or monoecious 9 to 12 m tall, evergreen trees. Leaves elliptic or oblong–lanceolate, coriaceous. Flowers creamyyellow, in umbellate cymes, fragrant. Fruits yellow, broadly pyriform or globose.

A native of E. Moluccas, cultivated in the Malay Peninsula and Malay islands. In India, it is found cultivated in places where the climate is sufficiently hot and moist.

Seeds are carminative, stomachic, useful in flatulency, nausea and vomitting. Oil from dried kernels are aperient, carminative. It contains essential oil and saponin; dry ripe seeds contain 5 to 15% volatile oil and 25 to 40% fixed oil; leaves yield 1.56% essential oil.

III. **Priyangu:** The important ayurvedic drug *Priyangu* derives from its accepted source, the young fruits of a N. Indian plant, *Callicarpa macrophylla* Vahl (Fig. 8) belonging to Verbenaceae. The other plants botanically equated with *Priyangu* are 1) *Prunus mahaleb* Linn., (Rosaceae), 2) *Aglaia elaeagnoidea* (Juss.) Benth., (= *A. roxburghiana* Miq.) (Meliaceae), (Bapalal, 14, 1972), 3) *Callicarpa tomentosa* (Linn.) Murr., (=*C. lanata* Linn.), (Verbenaceae) and 4) *Zanthoxylum rhetsa* (Roxb.) DC., (=*Z. budrunga* Wall. ex DC.,) (Rutaceae).

In S. India, *C. macrophylla* (Figure 8) and *P. mahaleb* are not found. Instead, the fruits of *Callicarpa tomentosa (=C. lanata)* (Fig. 9) are usually adulterated with *C. macrophylla* obtained from N. Indian markets. Generally, the fruits of *Zanthoxylum rhetsa* (Eig. 10) are marketed and used as *Priyangu* in S. India which is locally known as *Mullilam* (Malayalam). It is further observed that other species of *Zanthoxylum*, particularly *Z. alatum* Roxb., abundantly available in S. India is adulterated with that of *Z. rhetsa*.

The ellipsoid pedunculate brownish fruits of *Ziziphus* species (Figure 11) are also used sometimes as *Priyangu pushpa* (Kannada) in Karnataka; the source of supply of this material is reported to be from Calcutta market.

The synonyms *Gandha, Gandhapriyanguka, Syama* are suitable to *Zanthoxylum*. *Priyangu* is *vata pittahara* and used for treatment of diseases like *asyadurgandha, jwara* and *daha*.

Botanical description

1. **Callicarpa tomentosa** (Linn.) Murray (Verbenaceae) Large shrubs or small trees with leaves beneath fulvous tomentose. Flowers purple, in many flowered axillary cymes. Drupes black, globose with persistent calyx.

Distributed in Konkan, Carnatic, N. Kanara and W. ghats. Decoction of bark and root useful in fever, hepatic obstruction and skin diseases. Root is used in cutaneous affections. Leaves boiled in milk and used as a wash for aphthae of the mouth.

The dried black berries are sold as the drug.

2. **Zanthozylum rhetsa** (Roxb.) DC. (Rutaceae) Large deciduous trees with scattered conical prickles on trunks and branches. Leaves compound; leaflets 5 to 7 pairs. Flowers yellow. Drupes tubercled, globose.

W. Ghats, Orissa, Meghalaya.

Fruit aromatic, astringent, stimulant, stomachic, prescribed in dyspepsia and in some forms of diarrhoea; given in honey in rheumatism. Root bark considered a purgative of the kidneys. Fruits yield an essential oil; bark contains essential oil and alkaloid budrungaine and budrungainine; heart-wood contains alkaloids.

The dried dehisced drupes with shining seeds and peduncles constitute the drug.

IV. **Sathi:** The Zingiberaceae plant *Hedychium spicatum* Sm., (Fig. 12) having large, elongated rhizomes is the accepted source. The other plants equated with *Sathi* are 1) other species of *Hedychium*, 2) *Kaempeferia galanga* Linn, also of Zingiberaceae.

In S. Indian morkets, the small round sliced pieces of the rhizome of the plant locally known as *Kacholam* (Malayalam) are used as *Sathi* which is identified botanicaly as the rhizome of *Kaempeferia galanga*. (Fig. 13).

The synonyms *Shatgrandha, Gandhamutika* and *Palasi* are suited to *K. galanga*. *Sathi* is *jwarahara pacana, sulahara*, and *vruna nasana*.

Botanical description:

Kaempeferia galanga Linn. (Zingiberaceae) herbs Tuberous with 2 or 3 leaves spreading flat on the ground. Flowers white on a short scape; Lip with Lilac or purple spots.

Cultivated throughout India.

Tubers stimulant, expectorant, diuretic, carminative, reduced to powder and mixed with honey, given in coughs and pectoral affections; boiled in oil, externally applied to stoppages of the nasal organs. It contains essential oil and alkaloid.

V. **Srngi:** The galls formed due to the activity of some insects on different parts of the plant form the drug *Srngi*. The accepted source is the galls formed on *Pistacia integerrima* Stewart ex Brandis(Pistaciaceae; formerly placed in Anacardiaceae, (Fig. 14). The other sources of this drug are the galls of *Rhus succedanea* Linn., (Anacardiaceae) and *Terminalia chebula* (Gaertn.) Retz., on the leaves (Combretaceae). The galls of *R. succedanea* is adulterated with the accepted source while that of *T. chebula* is found and used in S. India. The galls of *T. chebula* are locally known as *Katukkapoo* (Malayalam) and is particularly prevalent in Kerala and Tamil Nadu (Fig. 15).

The synonyms like *Srngi, Karkataka srngi, Kulira* are more applicable to the galls of *P. integerrima*. *Srngi* is *vatakapha samana, jwarahara* and also used to cure *svasa* in children.

Botanical description

1. **Rhus succedanea** Linn. (Pistaciaceae).

Shrubs or a small tree, up to 15 m tall with thin dark grey rough bark. Leaves imparipinnate, crowded at the ends of branches. Flowers yellowish-green, in slender, lax, axillary panicles. Drupes gibbous, compressed.

Found from Kashmir to Bhutan extending to Meghalaya.

Thorn like protruberances are astringent, given to children suffering from diarrhoea and dysentery. Juice of leaves cause blisters on the skin. Fruits used in treatment of phthisis. Fruits yield Japan wax; leaves contain tannin; milky juice yields lacool which is identical with urushiol.

2. **Terminalia chebula** (Gaertn.) Retz. (Combretaceae)

Tall trees with spreading branches and dark brown fissured bark. Leaves ovate or elliptic with a pair of large glands at the top of the petiole. Flowers yellowish-white, in terminal spikes. Drupes ellipsoid, yellow to orange-brown.

Distributed throughout India.

Fruits has many medicinal properties; it is one of the *"triphala"* of ayurveda; bark diuretic and cardiotonic. Almost all parts contain tannin.

The galls on the leaves form the drug.

Conclusion: In this paper, five drugs have been evaluated after detailed market studies and discussions with physicians in S. India besides making personal observations of preparations in some leading S. Indian pharmacies. The attempt will enlighten the botanical, chemical and utilitarian aspects of the different botanically equated plants of the drugs with reference to those used in S. India. As many as 16 botanically different plants belonging to 15 genera and 13 families are involved over 5 āyurvedic drugs in the present study.

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