



Review Article

ETHANOBOTANICAL DIVERSITY IN PRACTICES AND PREPARATION OF *PUNARNAVADI KWATHA* IN KERALA AYURVEDA

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ABSTRACT

The Ayurvedic formulary has a long history of endogenous innovation. Its epistemic logic is best understood through the language of *Oushadhayogam* (polyherbal combination/dosage forms). *Punarnavadi kwatha* (PUK) is an Ayurvedic polyherbal formulation, which is also known as *Punarnavashtaka kwatha*. It is generally used to treat diseases of respiratory system, bronchitis, liver diseases, hepatitis, joint inflammation, kidney stones, wounds, skin diseases, and gout. The present study intended to explore the Ethanobotanical diversity of *Punarnavashtaka kwatha* in Kerala Ayurveda market. **Materials and Methods:** Thorough search in classical Ayurvedic literature to collect data in PUK and cross-sectional survey to collect data of ingredients PUK used in Ayurveda industry. **Results and Discussions:** The ingredients of PUK along with botanical source of 5 Kerala Ayurveda manufactures were analysed and compared with AFI. The ingredients *Punarnava*, *Nimba*, *Patola*, *Sunthi*, *Abhaya* was common in all the manufactures. But marked variation in other ingredients were found in market samples of PUK when compared to AFI, except first sample. **Conclusions:** There are some ethnobotanical diversity in ingredient list of *Punarnavadi kwatha* (PUK) in Kerala Ayurveda market.

INTRODUCTION

Indigenous herbal medicines are having long usage by the local population in terms of its composition, treatment and dosage, which can be used freely by the local community or in the local region. However, if the medicines in this category enter the market or go away from the local community or region, they have to meet the requirements of safety and efficacy as per the national regulations for herbal medicines. Herbal medicines in systems have been used for a long time and are documented with their special theories and concepts, and accepted by countries^[1]. Vaidyas (traditional medicine practitioners) were treating patients on the individual basis and prepare medicine in his own kitchen according to the requirement of the patient. But the scenario has changed;

herbal medicines are being manufactured on the large scale in pharmaceutical units.

World Health Organization (WHO) has defined herbal medicines as finished, labeled medicinal products that contain active ingredients, aerial or underground parts of the plant or other plant material or combinations^[2]. Polyherbal formulations have been used since ancient times as medicines for the treatment of many diseases. The recent global interest in herbal medicines has led to an increase in the demand for them. The need of the hour is to evolve a systematic approach and to develop well-designed methodologies for the standardization of herbal raw materials and herbal formulations. Thus, WHO has set specific guidelines for the evaluation of the safety, efficacy, and quality of traditional herbal medicines^[3].

Punarnavadi kwatha (PUK) is an Ayurvedic polyherbal formulation, which is also known as *Punarnavashtaka kwatha*. It is generally used to treat diseases of respiratory system, bronchitis, liver diseases, hepatitis, joint inflammation, kidney stones, wounds, skin diseases, and gout.

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The PUK is described in Ayurveda text books like *Chakradutta (Sothachikitsa)*^[4], *Sahasrayogam*^[5] (*Mahodaraprakarana*), *Bhaishajyaratnavali*^[6] (*Sothadikara*) and The Ayurvedic Formulary of India (AFI)^[7]. The indication of PUK is *Sarvanga-sotha* (general oedema), *Udara* (ascites), *Kasa* (cough), *Soola* (pain), *Swasa* (breathing difficulty), *Pandu* (anemia). In text book *Yogaratanakaram*^[8] additional indications are mentioned such as *Sthoulya* (obesity), *Prasekam* (salivation), and *Urdwa-kapharoga* (respiratory disorders). In another traditional Kerala textbook *Aarogyakalpadrum*^[9] put change in ingredient list; i.e., *Tiktha* is replaced as *Bhoonimba* and added one more indication - *Jwara* (fever) to this PUK.

The PUK has eight ingredients as per AFI^[7]; *Punarnava*, *Nimba*, *Patola*, *Sunthi*, *Tiktha*, *Guduchi*, *Darvi*, *Haritaki*. *Boerhavia diffusa* Linn, *Azadiracta indica* A. Juss. Syn, *Tricosanthes dioica* Roxb, *Zingiber officinale* Roxb, *Picrorhiza kurroa* Royle ex.Benth, *Tinospora cordifolia* Willd. Miers Ex Hook, *Cedrus deodra* Roxb, *Terminalia chebula* Retz. are taken as

Table 1: Ingredients along with botanical source of PUK as per AFI and market samples of Kerala

S.no.	Name of the Manufacturer	Ingredients name in Sanskrit	Botanical source as per label
1	AFI ⁽⁷⁾	<i>Punarnava, Nimba, Patola, Sunthi, Tiktha, Amritha, Devadaru, Abhaya</i>	<i>Boerhavia diffusa</i> Linn, <i>Azadiracta indica</i> A. Juss. Syn, <i>Tricosanthes dioica</i> Roxb, <i>Zingiber officinale</i> Roxb, <i>Picrorhiza kurroa</i> Royle ex.Benth, <i>Tinospora cordifolia</i> Willd. Miers Ex Hook, <i>Cedrus deodra</i> Roxb, <i>Terminalia chebula</i> Retz.
1	S1	<i>Punarnava, Nimba, Patola, Sunthi, Tiktha, Amritha, Devadaru, Abhaya</i>	<i>Boerhavia diffusa</i> Linn, <i>Azadiracta indica</i> A. Juss. Syn, <i>Tricosanthes dioica</i> Roxb, <i>Zingiber officinale</i> Roxb, <i>Picrorhiza kurroa</i> Royle ex.Benth, <i>Tinospora cordifolia</i> Willd.Miers Ex Hook, <i>Cedrus deodra</i> Roxb, <i>Terminalia chebula</i> Retz.
2	S2	<i>Punarnava, nimba, patola, Sunthi, Kiratatiktha, Amritha, Darvi, Abhaya</i>	<i>Boerhavia diffusa</i> Linn, <i>Azadiracta indica</i> A. Juss. Syn, <i>Tricosanthes dioica</i> Roxb, <i>Zingiber officinale</i> Roxb, <i>Swertia chirata</i> Buch Ham., <i>Tinospora cordifolia</i> Willd.Miers Ex Hook, <i>Coscinium fenestratum</i> Gaertn. Colebr, <i>Terminalia chebula</i> Retz.
3	S3	<i>Punarnava, Nimba, Patola, Sunthi, Kiratatiktha, Nisha, Devadaru, Abhaya</i>	<i>Boerhavia diffusa</i> Linn, <i>Azadiracta indica</i> A. Juss. Syn, <i>Luffa acutangula</i> Linn, <i>Zingiber officinale</i> Roxb, <i>Andrographis paniculate</i> Burm. f, <i>Curcuma longa</i> linn, <i>Cedrus deodra</i> Roxb, <i>Terminalia chebula</i> Retz.
4	S4	<i>Punarnava, Nimba, Patola, Sunthi, Kantakari, Amritha, Darvi, Abhaya</i>	<i>Boerhavia diffusa</i> Linn, <i>Azadiracta indica</i> A. Juss. Syn, <i>Tricosanthes dioica</i> Roxb, <i>Zingiber officinale</i> Roxb, <i>Solanum indicum</i> Linn, <i>Tinospora cordifolia</i> Willd.Miers Ex Hook, <i>Berberis aristata</i> Dc, <i>Terminalia chebula</i> Retz.
5	S5	<i>Punarnava, Nimba, Patola, Sunthi, Kantakari, Amritha, Darvi, Abhaya</i>	<i>Boerhavia diffusa</i> Linn, <i>Azadiracta indica</i> A. Juss. Syn, <i>Tricosanthes dioica</i> Roxb, <i>Zingiber officinale</i> Roxb, <i>Solanum indicum</i> Linn, <i>Tinospora cordifolia</i> Willd.Miers Ex Hook, <i>Berberis aristata</i> Dc, <i>Terminalia chebula</i> Retz.

Only one market sample (S1) completely matches with AFI^[7]. All the other four samples showed marked variation in ingredients label/list.

S2- showed variation of two ingredients, *Tiktha* is replaced as *Kiratatiktha* and botanical source written as *Swertia chirata* Buch Ham. For another

their respective botanical source in AFI^[7]. Ayurveda Pharmacopeia of Government Ayurveda College, Thiruvananthapuram^[10], the also described same ingredient list as on AFI.

But noted some differences in ingredient label of PUK marketed by different manufacturing companies in Kerala. Thus, present study intended to explore the Ethanobotanical diversity of PUK in Kerala Ayurveda market.

MATERIALS AND METHODS

Five packing PUK was purchased from different herbal drug stores in Thiruvananthapuram, Kerala and represented as S1, S2, S3, S4, S5. The ingredient list with botanical source were noted. It was compared with the AFI standards and tabulated.

OBSERVATIONS

Contents of PUK in Kerala Ayurveda Manufactures

Ingredients along with botanical source of PUK as per AFI and market samples of Kerala, named S1, S2, S3, S4, S5 are listed in the Table no.1.

ingredient *Darvi* botanical source is written as *Coscinium fenestratum* Gaertn. Colebr as compared with AFI^[7].

S3- showed variation of three ingredients; *Tiktha* is replaced as *Kiratatiktha* with botanical source is written as *Andrographis paniculata* Burm. f;

another ingredient *Amritha* is replaced with *Nisha* and its botanical source written as *Curcuma longa* Linn. One more replacement of ingredient- *Darvi* which is replaced as *Devadaru* with its botanical source written as *Cedrus deodra* Roxb and the botanical source for *Patola* is written as *Luffa acutangula* Linn as compared with AFI [7].

S4 and S5- showed variation of two ingredients; *Tiktha* is replaced as *Kantakari* with its botanical source written as *Solanum indicum* Linn, and *Darvi* with its botanical source written as *Berberis aristata* Dc as compared with AFI [7].

RESULTS AND DISCUSSION

The Ayurvedic formulary has a long history of endogenous innovation. Its epistemic logic is best understood through the language of *Oushadhyogam* (polyherbal combination/dosage forms). The vast areas of documented and non-documented Ayurvedic wisdom contributed much to these innovations. Majority of Kerala's ethnomedical knowledge diversity is documented and few available as books and these books are less explored as they are in public domain and lack translational money value. The Ayurvedic sector is undoubtedly emerging as medicine-centered in contrast to its basic patient-centered orientation that was, characterized as the pre-eminence of the "pharmaceutic episteme (Banerjee 2002).

Punarnavashtaka kwatha is one of the most popular *Kwatha* Yoga which is prescribed by many physicians especially for *Sopha*, *udara* etc. The first documented Ayurvedic description about PUK is seen in *Chakradutta*^[4] in the context of *Sothachikitsa*; the ingredients are *Punarnava*, *Nimba*, *Patola*, *Sunthi*, *Katuki*, *Guduchi*, *Devadaru*, *Haritaki*. The Ayurveda Formulary of India (AFI) [7] has followed the same PUK mentioned in *Chakradutta*^[4] with same ingredients and indications. This is traditionally well documented and practiced medicine as it is copied in all following textbooks such as *Yogaratanakaram*^[8], *Bhaishajya ratnavali*^[6], *Chikitsamanjari*^[11], *Arogyakalpadrumam*^[9], etc., in varied contexts from *Sopha-chikitsa* to *Udara chikitsa*. In *Arogyakalpadrumam*^[9], it is indicated in *Sarvanga sotha* with *Jwara*, *Kasa*, *Swasa*, *Soola* (pain) and adjuvant as sugar. In *Sahasrayogam- Sujanapriya vyakhyana*^[5], PUK is mentioned in *Mahodara prakarana* with ingredients and indications are same as in *Chikitsamanjari*^[11]. But in *Sahasrayogam- Basha vyakhyana sahitha*^[12], PUK is mentioned in *Mahodara prakarana* with *Punarnava*, *Nimba*, *Patola*, *Sunthi*, *Kiratatiktha*, *Guduchi*, *Daruharidra*, *Haritaki* as the ingredients and indications are *Sarvanga sotha*, *Udara*, *Kasa*, *Soola*, *Swasa*, *Pandu*. Thus, the contexts and ingredients of PUK are different in various classical textbooks. This may be due to availability of drugs in particular regions. This paper was an attempt to look at the homogeneity of ingredients of *Punarnavashtaka*

kwatha prepared by different manufacturing companies.

The ingredients of PUK along with botanical source available in Kerala Ayurveda manufactures were analysed. *Punarnava*, *Nimba*, *Patola*, *Sunthi*, *Abhaya* was common for all the manufactures. But marked variation in samples collected S2, S3, S4, S5 when compared to AFI [7] as shown in table no.1. This may be due to traditional practices, raw material availability or improvisations in clinical practice. Ayurvedic practice in modern India reflects a prolonged history of standardization and professionalization that transformed certain aspects of this medical tradition. A major concern is the change in product pattern, which may hamper the spread of Ayurvedic therapeutic tradition and its clinical value in future^[13]. The initial and urgent step of standardization of Ayurvedic formulations is to create or put forward the parameters like ingredient uniformity, product safety and efficacy.

CONCLUSION

The PUK has eight ingredients as per AFI; *Punarnava*, *Nimba*, *Patola*, *Sunthi*, *Tiktha*, *Guduchi*, *Darvi*, *Haritaki*. *Boerhavia diffusa* Linn, *Azadiracta indica* A. Juss. Syn, *Tricosanthes dioica* Roxb, *Zingiber officinale* Roxb, *Picrorhiza kurroa* Royle ex. Benth, *Tinospora cordifolia* Willd. Miers Ex Hook, *Cedrus deodra* Dc, *Terminalia chebula* Retz are taken as their respective botanical source in AFI. But noted some differences in ingredient label of PUK marketed by different manufacturing companies in Kerala. Thus, it needs more researches to explore and standardize the Ethanobotanical diversity of *Punarnavadi kwatha* in Kerala Ayurveda market.

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