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QUALITATIVE EVALUATION OF NAVA PIPPALI AND PURANAPIPPALI

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ABSTRACT

Ayurveda, the ancient traditional system of medicine mentions various concepts, which is needed to explore and revalidate them through scientific parameters for better understanding and thereby extending its scope of utility. Among these, one of the concepts is mentioned in *Sharangdhara Samhita* which states that the drugs are to be used in *Nava* (fresh form) only except few drugs like *Pippali* (Piper longum Linn.) etc. should be used as *Purana*(old form). Hence there is necessary to revalidate the concept through scientific parameters by evaluating the Qualities of *NavaPippali* (Fresh form) and *PuranaPippali* (Old form). Evaluation of a drug ensures the identity of a drug and determines the quality and purity of drug.

KEYWORDS: *Nava pippali, PuranaPippali*, Piper longum Linn.

INTRODUCTION

Ayurveda, the ancient traditional system of medicine mentions various concepts, which is needed to explore and revalidate them through scientific parameters for better understanding and thereby extending its scope of utility. Among these, one of the concepts is mentioned in *Sharngadhara Samhita* as:

नवान्येवहियोज्यानिद्रव्याण्यखिलकर्मसु।

विनाविडङ्गकृष्णाभ्यांगुडधान्याज्यमाक्षिकै:॥[1]

All the plant drugs are to be used in *Nava* (fresh form) only except few drugs like *Vidanga*(Embeliaribes), *Krishna*(PiperlongumLinn.), *Guda*(Jaggery), *Dhanya*(Cereals),

Ajya(Ghee), *Makshika*(Honey) should be used as *Purana*(old form). *Pippali* which is the synonym of *krishna* is one among these drugs which should be used as *Purana*(old form) only.[1]

विडङ्गादिद्रव्यंविनातेनविडङ्गप्रभृतिकंपुरातनंगुणकरमितितात्पर्यार्थः॥(आढमल्लटीका)

Adhamalla's Dipika, commentary on *Sharngadhara Samhita* mentions that *Vidanga, Pippali* etc. drugs if used in old form will be of good Quality/Potent.

पुरातनत्वंसंवत्सरादुपरिभवति। (आढमल्लटीका)

The time of these drugs which are to be used in old form is mentioned by *Adhamalla* as: *Pippali* and other drugs must be used one year old.

Hence quality of a drug is given much importance in order to achieve its therapeutic efficacy.

So *Dravya*(drug) is considered as second important factor next to *Vaidya*(Physician) in *Chikitsa Chatushpada*(four aspects of treatment), which are responsible for the cure of diseases, provided they have requisite qualities like its abundance, suitability, available in various forms and should possess all the properties.[2] Hence it emphasizes that drug should be selected of good quality in order to achieve maximum therapeutic efficiency.

Hence there is necessary to revalidate the concept through scientific parameters by evaluating the Qualities of *Nava Pippali* (Fresh form) and *PuranaPippali* (Old form). Evaluation of a drug ensures the identity of a drug and determines the quality and purity of drug.

MATERIALS AND METHODS

Plant material

Nava Pippali: Freshly collected fruits of *Pippali* (Piper longum Linn.)

The samples were dried in shade.

PuranaPippali: Freshly collected fruits of *Pippali* preserved for one year at room temperature.

Collection of plant material

Piper longum Linn. fresh fruits were collected from three different places of its habitat:

Sample 1: Collected from Bihar.

Sample 2: Collected from Assam.

Sample 3: Collected from Kerala.

All the samples were identified and authenticated by Agharkar Research Institute, Pune.

Nava Pippali: Freshly collected fruits of *Pippali*.

Sample 1 fresh fruits were named as N1, sample 2 was named as N2 and sample 3 was named as N3. All the samples were dried in shade.

PuranaPippali: Freshly collected fruits of *Pippali* preserved for one year at room temperature.

Sample 1 old fruits were named as P1, sample 2 was named as P2 and sample 3 was named as P3.

Tab I: Sample names.

Sample No.	***Nava Pippali***	***PuranaPippali***
Sample 1	N1	P1
Sample 2	N2	P2
Sample 3	N3	P3

All these samples were powdered, passed through sieve size of 44 number and packed in self sealed polythene bags after labeling. All the samples were kept at room temperature. Qualitative evaluation of ***Nava Pippali*** and ***PuranaPippali*** was performed.

Physico-chemical analysis was performed by the following procedures:

1. Determination of Moisture content.
2. Determination of Ash.

(a) Total ash

(b) Acid insoluble ash

3. Determination of extractives.

(a) Water soluble extractive.

(b) Methanol soluble extractive.

4. Determination of P^H.
5. Determination of Volatile oil.

Physico-chemical analysis

Determination of Moisture content

The moisture content or loss on drying was determined by taking 2g of accurately weighed *Nava Pippali/PuranaPippali*, in a dried and previously weighed petri-dish. It was spread evenly and dried in an oven 110^0C till constant weight. The weight of *Pippali* sample after drying was noted and loss on drying was calculated. The percentage was calculated on the basis of air-dried *Nava Pippali/PuranaPippali* sample.[3]

Determination of ash

a. Determination of total ash

The ash value of *Nava Pippali/PuranaPippali* was determined by incinerating about 2 g of accurately weighed *Nava Pippali/PuranaPippali* in a tarred silica crucible at a temperature not exceeding 450°C till constant weight and then it is cooled and weighed. The percentage of ash was calculated with reference to air-dried *Nava Pippali/PuranaPippali* sample.[3]

b. Determination of acid insoluble ash

The ash obtained from the total ash content of *Nava Pippali/PuranaPippali*, was boiled for five minutes with 25 ml of dilute hydrochloric acid (2 N), the insoluble matter of *Pippali* sample was collected on an ashless filter paper, washed with hot water and ignited to constant weight. The percentage of acid insoluble ash was calculated with reference to air-dried *Nava Pippali/PuranaPippali* sample.[3]

Determination of extractives

a. Determination of water soluble extractive

About 5g accurately weighed *Nava Pippali/PuranaPippali* sample was macerated with 100 ml of distilled water in a closed flask for twenty-four hours, shaking intermittently for first six hours and allowed to stand for eighteen hours. Then the *Pippali* sample was filtered, taking precaution against loss of solvent and 20 ml of the filtrate *Pippali* sample was evaporated to dryness in a previously weighed dried evaporating dish. Then the *Pippali* sample was dried over water-bath and then at 110^0C in hot air oven, to constant weight and weight was noted down. From the weight of the residue the percentage of water-soluble extractive of *Nava Pippali/PuranaPippali* was calculated.[4]

b. Determination of methanol soluble extractive

Methanol soluble extractive value of *Nava Pippali/PuranaPippali* was determined by same procedure as described in water soluble extractive value by taking methanol instead of water.

Determination of P^H Value

A 5% w/v aqueous extract of *Nava Pippali/PuranaPippali* was prepared, filtered and the pH of the filtrate *Pippali* sample was noted with the help of digital P^H meter.

Determination of Volatile oil

25 gm of coarsely powdered *Nava Pippali/PuranaPippali* sample was extracted with about 500 ml water in Clevenger's apparatus for about 3 hours. Volatile oil obtained was taken in diethyl ether and dried using anhydrous sodium sulphate.[4]

OBSERVATIONS AND RESULTS

Nava Pippali

Physico-chemical analysis

Table II: Loss on drying (% w/w).

Sr.No.	Samples	Values
1	N1	9.848
2	N2	9.978
3	N3	11.71

Table III: Total ash (% w/w).

Sr.No.	Samples	Values
1	N1	4.94
2	N2	4.67
3	N3	4.74

Table IV: Acid insoluble ash (% w/w).

Sr.No.	Samples	Values
1	N1	1.15
2	N2	1.23
3	N3	0.95

Table V: Water soluble extractive (% w/w).

Sr.No.	Samples	Values
1	N1	11.29
2	N2	16.07
3	N3	12.89

Table VI: Methanol soluble extractive (% w/w).

Sr.No.	Samples	Values
1	N1	7.63
2	N2	12.5
3	N3	9.44

Table VII: P^H (5 % aqueous extract).

Sr.No.	Samples	Values
1	N1	6.72
2	N2	6.31
3	N3	5.90

Table VIII: Volatile oil content (% w/w).

Sr.No.	Samples	Values
1	N1	1.0
2	N2	1.2
3	N3	0.80

PuranaPippali

Physico-chemical analysis

Table IX: Loss on drying (% w/w).

Sr.No.	Samples	Values
1	P1	11.14
2	P2	12.46
3	P3	12.41

Table X: Total ash (% w/w).

Sr.No.	Samples	Values
1	P1	3.48
2	P2	4.21
3	P3	3.76

Table XI: Acid insoluble ash (% w/w).

Sr.No.	Samples	Values
1	P1	0.61
2	P2	0.44
3	P3	0.65

Table XII: Water soluble extractive (% w/w).

Sr.No.	Samples	Values
1	P1	9.90
2	P2	14.30
3	P3	9.64

Table XIII: Methanol soluble extractive (% w/w).

Sr.No.	Samples	Values
1	P1	7.76
2	P2	11.5
3	P3	7.88

Table XIV: P^H (5% aqueous extract) at RT.

Sr.No.	Samples	Values
1	P1	5.93
2	P2	5.32
3	P3	5.49

Table XV: Volatile oil content (% w/w).

Sr.No.	Samples	Values
1	P1	1.0
2	P2	1.2
3	P3	1.2

DISCUSSION

Physico-chemical parameters

Determination of loss on drying

Loss on drying of P1, P2 and P3 *Pippali* samples (11.14, 12.46 and 12.41% w/w) were more when compared with loss on drying of N1, N2 and N3 *Pippali* samples (9.848, 9.978 and 11.71% w/w).

Determination of total ash

Total ash of P1, P2 and P3 *Pippali* samples (3.48, 4.21 and 3.76% w/w) were less when compared with total ash of N1, N2 and N3 *Pippali* samples (4.94, 4.67 and 4.74% w/w).

Determination of acid insoluble ash

Acid insoluble ash of P1, P2 and P3 *Pippali* samples (0.61, 0.44 and 0.65% w/w) were less when compared with acid insoluble ash of N1, N2 and N3 *Pippali* samples (1.15, 1.23 and 0.95% w/w).

Determination of water soluble extractive

Water soluble extractive values of P1, P2 and P3 *Pippali* samples (9.90, 14.30 and 9.64% w/w) were less when compared with water soluble extractive values of N1, N2 and N3 *Pippali* samples (11.29, 16.07 and 12.89% w/w).

Determination of methanol soluble extractive

Methanol soluble extractive value of P1 *Pippali* sample (7.76%) was more when compared with methanol soluble extractive of N1 sample (7.63%) while methanol soluble extractive values of P2 and P3 *Pippali* samples were less (11.5 and 7.88% w/w) when compared with that of N2 and N3 *Pippali* samples (12.5 and 9.44% w/w).

Determination of P^H

P^H of P1, P2 and P3 *Pippali* samples (5.93, 5.32 and 5.49) were slightly acidic when compared with P^H of N1, N2 and N3 *Pippali* samples (6.72, 6.31 and 5.90).

Determinaion of Volatile oil

There was no change in the Volatile oil content of P1 (1.0%) and N1 (1.0%) *Pippali* samples, P2 (1.2%) and N2 (1.2%) *Pippali* samples. Volatile oil content of P3 *Pippali* sample (1.2%) was more when compared with that of N3 sample (0.80%).

CONCLUSION

By Physico-chemical analysis it is noted that Quantitative and Qualitative changes are observed in *PuranaPippali*, which indicates the identity, quality and purity of drug required for the therapeutic effect.

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