



THE SYNERGY OF SCIENCE AND AYURVEDA IN CHATURVIDHA AUKA

Roopam Bhardwaj* Dr.Chandni Gupta** , Prof. Ashwani Upadhyaya***, Prof. Navneet Sharma***,Prof. Rashmi Srivastava***

*MD Scholar, Department of Dravyaguna , Rajiv Gandhi Government Post Graduate Ayurvedic College and Hospital, Paprola,Himachal Pradesh , 176115, India.

**Senior Lecturer, Department of Dravyaguna,Rajiv Gandhi Government Post Graduate Ayurvedic College and Hospital, Paprola,Himachal Pradesh , 176115, India.

***Professor,Department of Dravyaguna,Rajiv Gandhi Government Post Graduate Ayurvedic College and Hospital, Paprola,Himachal Pradesh , 176115, India.

Abstract-This paper explores the meaning of "Chaturvidha Aruka," a term referring to four diverse fruits mentioned in ancient Indian texts, particularly in Ayurvedic literature. The fruits, namely Aadoo (*Prunus Persica* Linn.), Aloo Bukhara (*Prunus domestica* Linn.), Aloo Baloo Gilas (*Prunus cerasus* Linn.), and Aloocho (*Prunus insititia* Linn.), hold cultural, religious, and medicinal importance. By exploring their scientific names, "ras panchak", (five tastes), chemical constituents, properties, morphology, and nutritive values, we aim to provide a comprehensive overview of these fruits and their potential benefits. Through an analysis of Ayurvedic texts and modern scientific research, the paper associates traditional descriptions with modern botanical characteristics and nutritional compositions. Each fruit exhibits unique morphological characteristics and provides essential nutrients such as vitamins, minerals, and dietary fiber. Moreover, they possess medicinal properties including anti-inflammatory, antioxidant, antimicrobial, immunomodulatory, and anticancer effects. Integrating these fruits into the diet can promote overall health and well-being, offering protection against diseases and enhancing physiological functions. The paper underscores the importance of diversifying fruit consumption for maximizing nutritional benefits and suggests paths for further research. Overall, it highlights the worth of these fruits in traditional and modern healthcare, highlighting their potential as valuable resources for human health improvement.

Keywords - Aruka, Antioxidant, Anti Inflammatory, Brimhana .

INTRODUCTION: In ancient Indian texts, particularly in the Vedas and Ayurvedic literature, the use of fruits has been deeply ingrained in cultural and religious practices. These fruits often served various purposes such as offerings (Prasadam), regular consumption (Bhoga), and during fasting (Upvasa). Among the many fruits mentioned in these texts, one that stands out is "Aruka," which has gathered attention due to its unique name and diverse mentions across different periods of Ayurvedic literature. The initial reference to Aruka can be drawn back in the Ayurvedic text "Charaka Samhita," attributed to Acharya Charaka, where it is mentioned in the Phala Varga. However, it gained more popularity during the Nighantu period, a phase in Ayurvedic literature known for the assembling of materia medica, which includes the classification and description of various medicinal substances. During this period, the term "Chaturvidha Aruka" was coined, suggesting four types of Aruka. The first time these four types of Aruka were explained in Dhanvantari Nighantu. Nighantus such as Shodhala, Madanpala, Kaidev, Rajnighantu, among others, also mentioned these four types of

Aruka..This variation has led to ambiguity and confusion regarding the identification and correlation of these fruits with their modern complements. Hence the present paper is an eyeshot on the “Chaturvidha Aruka ” with their modern correlation . These efforts involve studying the descriptions provided in the Nighantus, comparing them with the characteristics of known fruits, and using botanical and pharmacological knowledge to find correlations.

TYPES-

Types	Charak ^[1]	Dhanvantri nighantu ^[2]	Shodhala nighantu ^[3]	Madanpal a nighantu ^[4]	Kaidev nighantu ^[5]	Raja nighantu ^[6]	Priya nighantu ^[7]
Aruka	+	+	+	+	+	+	+
Veerse na	-	+	+	-	+	+	-
Veera	-	+	+	-	-	+	-
Veeraa ruka	-	+	-	-	-	+	-
Veerat aka	-	-	+	-	-	-	-
Cheena	-	-	-	-	+	-	-
Cheen aaruka	-	-	-	-	+	-	-

Material and methods- Yadav ji Trikam ji gave the following names for the Chaturvidha Aruka mentioned in Dhanvantari Nighantu:

Sr. No	Sanskrit name	Hindi Name	Common Name	Botanical name	Family	Chemical constituents	Uses
1.	Aruka	Aadu	Peach	<i>Prunus Persica</i> Linn.	Rosaceae	Caffeic acid, chlorogenic acid, tannin ursolic acid, Cyclohexene, 1 methylhydrazine, 3-carene, benzaldehyde, limonene Amygdalin, Prunasin, 6-hydroxy 4-methoxy 2-O-B-D-glucopyranoside, 8-O B-D-galactopyranoside, Quercetin ^[8]	Anti-inflammatory, Cholinesterase inhibitory, .Anti-allergic, Anti-oxidant, Anti-photoaging, Protection against skin carcinogenesis, .Protection against UV-induced skin damage, Anti-tumor ^[8]
2.	Veersena	Aloo Bukhara	Plum	<i>Prunus domestica</i> Linn.	Rosaceae	Beta-Glucosidase, alpha-pinene, Benzaldehyde, Beta-Pinene, trans-Caryophyllene, trans-beta-Farnesene, gamma-cadinene, delta-cadinene, tetradecanoic acid, Tricosane, tetracosane, heptacosane, Methanol, Glycerol, n Hexane, Kaempferol-3-o-glycoside, Rutin ^[9]	Antioxidant Antimicrobial, Cholinesterase inhibitory activity, cytotoxic and anticancer Hepatoprotective Anti-hyperlipidemic Anti-inflammatory Antidiabetic Larvicidal and repellent activity ^[3]
3.	Veera	Aloo Baloo Gilas	Sour Cherry	<i>Prunus cerasus</i> Linn.	Rosaceae	Melatonin, tectochrysin, Pinochembrin, Sakuranetin Aromadendrene, Taxifolin, Cerasin, Cerasinose, Kaempferol Sitosterol, Stigmasterol, Prunetin-5-glucoside protocatechuic, p-coumaric, ferulic acid, Amygdalin, Hydrocyanic acid Flavonoids glycosides ^[10]	Immunomodulatory activities, anti-oxidant, Enhance sleep activities, quality, Anti-inflammatory, Skin care and promoting health, antidiabetic activities, Antimicrobial activities ^[10]

4.	Veeraaruka	Aloocha	Damson plum	<i>Prunus insititia</i> Linn.	Rosaceae	Amygdalin, prunasin, hydrocyanic acid ^[11]	Antioxidant, Antiradical, Laxative, Stomachic, mild purgative, ^[11]
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Ras panchak

Samhita/Nighantu	Charak ^[1]	Dhanvantri Nighantu ^[2]	Shodhan nighantu ^[3]	Madanpal nighantu ^[4]	Kaidev nighantu ^[5]	Raj nighantu ^[6]	Priya nighantu ^[7]
Rasa	Madhur	-	-	Amla	Madhur	Madhur	Swadu
Guna	Guru , Brihan	-	-	Brihan	-	Guru , Brihan	Brihan
Veerya	Na-ati-ushan	-	-	Sheetal	Na-ati-ushan	Sheet	Eshad Ushan
Dosh karama	Helps in quick digestion , does not increase doshas in large quantities	cardio-protective,antidiabetic,antihaemorrhoidal	-	Vata pitta krita	It arouses interest in food,anti aging,vatnashak,antidiabetic,antihemorrhoidal ,cardioprotective ,Cleansing of mouth	antidiabetic,antihaemorrhoidal anti tumorous,rakta dosha vidhwansak	it arouses interest in food,cardio-protective ,anti haemorrhoidal

Morphological characteristics

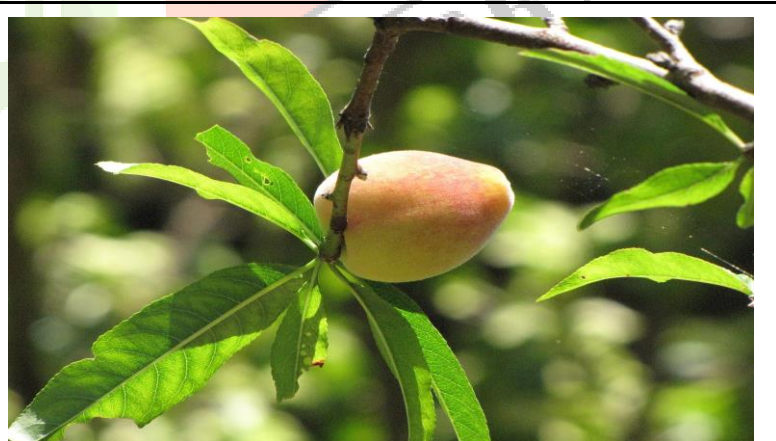
1. *Prunus persica* Linn. -

Tree: Deciduous , Height=10m(fully mature), it consists of a thin trunk which is gray in color with a broad crown and spreading canopy. Age=Short lived (8-10 years).

Leaves: Glossy,flat,veins are straight,tips are pointed,length=7-12cm.Arrangement of leaves are alternative ,2 to 4 leaves are present on young branches and stem.

Fruits: Shape of fruit (mature) = round or oval,diameter=7-10cm,weighs=10-130g approx.The surface of fruit is yellow and the part of the fruit that is exposed towards sun gives a ting of redness.A longitudinal ridge runs down from stem to the fruit's tip. The flesh of the fruit is red, yellow or white and is reactive to bruising.It is a drupe type of fruit and developed from a single ovary,hence contains single ,oval shaped seed whose diameter is 1-2 cm and located at the center .Harvestation of fruit occurs from june to september.

Flowers:The flowers arise in early spring. At the nodes of branches ,these are present in pairs or singly.The flower comprises pink 5 petals and 5 sepals.^[12]



2.*Prunus domestica* Linn.-

Tree:Height = 8-10m, it consists of short stems and twigs which are reddish brown in color.

Leaves: Length=4 inch, serrated,oval,notched and thin .

Flowers: Creamish in color, occur in bunches and are 5 petalled.

Fruit:It is a drupe type of fruit. It has a fleshy mesocarp and a hard stony pit which contains the seed.Shape of fruit is oval or round and diameter is 8 cm(approx.) .Outer surface is smooth and the color varies from red ,yellow,green or purple. It has a glaucous appearance due to the presence of a waxy layer on the skin .The

aroma of fruit is because of volatile compounds present in it i.e.cinnamate,linalool,ethyl nonanoate and benzaldehyde.Alkanes and alcohols are present in wax blooms, that are responsible for flavors^[13]



3. *Prunus cerasus* Linn.

Tree: Deciduous, Height= 30 to 40 ft i.e.20m. It comprises a trunk which is reddish -brown .The branches of trees are upright.

Leaves: Base of leaves are round and tips are elongated.

Flowers:They develop in clusters and have multiple buds which are further developed into shoots.

Fruit: Diameter of mature fruit is 3-5 cm. Color of fruit varies from yellow to purple.Extension of stem occurs upto 1.5 inches and they bear large fruits.

Seed: It is stony brown in color and is located at the center .It is surrounded by thick flesh(around 2 cm).The taste of the flesh is sweet and its texture is soft and firm. ^[14]



4. *Prunus insititia* Linn.

Tree: *Prunus insititia* Linn. is a small, deciduous tree or shrub, occasionally spiny.

Leaves: The leaves are elliptic, finely serrated, and green.

Flowers: In mid-spring, it bursts into a profusion of white, 5-petaled blossoms, creating a spectacular display.

Fruit: Damsons are relatively small, ovoid plum-like fruits. They come in various colors: yellow, red, green, or purple. The taste is distinctive, somewhat astringent. Damsons are widely used for culinary purposes, especially in fruit preserves and jams.



Nutrients Nutritive Value per 100 g-

Prunus persica Linn.^[12]

Prunus domestica Linn.^[13]

Water	89 g
Protein	0.9 g
Total lipid	0.3 g
Fibre	1.5 g
Carbohydrate	9.9 g
Ash	8 g
Total Sugars	8.4 g
Energy	163 kJ
Calcium	1%~1g
Iron	2%~2g
Magnesium	9 mg
Phosphorus	20 mg
Potassium	190 mg
Copper	0.1 mg
Zinc	0.2 mg
Vitamin C	6.6 mg
Vitamin E	0.7 mg
Vitamin A	362 IU
Choline	6.2 mg

Water	87.23g
Protein	0.70g
Total lipid	0.28g
Fibre	2.2g
Carbohydrate	11.42g
Energy	192kcal
Calcium	6mg
Iron	0.17mg
Magnesium	7mg
Phosphorus	16mg
Potassium	16mg
Vitamin	9.5mg
Vitamin A	17 RAE(Microgram)
Vitamin B	30.417mg

Prunus cerasus Linn. ^[14]

Prunus insititia Linn. ^[15]

Protein	1.06g
Carbohydrate	16.1g
Fat	0.2g
Dietary fibre	2.1g
Total Sugar	12g
Thiamine(B1)	0.02mg
Riboflavin(B2)	0.033mg
Niacin(B3)	0.154mg
Pantothenic acid	0.2mg
Vitamin B6	0.05mg
Folates	4 microgram
Vitamin C	8mg
Vitamin A	640 IU
Calcium	13 mg
Magnesium	11mg
Phosphorus	21mg
Manganese	0.070mg
Zinc	0.06mg
Iron	0.36 mg

Calories	115 calories
Carbohydrate	30.5g
Fibre	3.4g
Sugar	18.1g
Fat	0.2g
Protein	1.1g
Vitamin k	28.25microgram
Potassium	357.5 microgram

Discussion:

Within the spectrum of "**Chaturvidha Aruka**," each fruit exhibits distinct nutritional characteristics, making them valuable contributors to overall health.

1. Peaches:

- Best for: Hydration and vitamin C intake.
- Nutritional Values: High water content (around 89g per 100g), moderate levels of carbohydrates, and vitamin C (about 6.6mg per 100g).

2. Plums:

- Best for: Digestive health and vitamin A intake.
- Nutritional Values: High fiber content (around 2.2g per 100g), significant levels of carbohydrates, and vitamin A (17 RAE Microgram per 100g).

3. Sour Cherries:

- Best for: Reducing inflammation and muscle soreness.
- Nutritional Values: High in antioxidants like vitamin C (around 8 mg per 100g) and anthocyanins, with potential anti-inflammatory properties.

4. Damson Plums:

- Best for: Vitamin K intake and antioxidant support.
- Nutritional Values: Rich in vitamin K (about 28.25 microgram per 100g) and antioxidants, supporting bone health and providing protection against oxidative stress.

These fruits offer a range of health benefits, from hydration and digestion to immune support and inflammation reduction. Including them in the diet ensures a diverse intake of essential nutrients, contributing to overall well-being.

Conclusion:

In summary, the **Chaturvidha Aruka**, Aadoo (*Prunus Persica* Linn.), Aloo Bukhara (*Prunus domestica* Linn.), Aloo Baloo Gilas (*Prunus cerasus* Linn.), and Aloocho (*Prunus insititia* Linn.), belonging to the Rosaceae family, exhibit various medicinal properties due to their rich chemical compositions. These properties comprise anti-inflammatory, antioxidant, antimicrobial, immunomodulatory, and anticancer effects, among others. Moreover, each fruit owns distinct morphological characteristics and provides a series of essential nutrients such as vitamins, minerals, and dietary fiber. These Fruits have been traditionally used for various health benefits and are supported by both traditional Ayurvedic texts and modern scientific research. Incorporating them into the diet can contribute to overall health and well-being, prevailing protection against diseases and promoting various physiological functions. Overall, the widespread understanding of the botanical, chemical, medicinal, and nutritional characteristics of these fruits underscores their importance in both traditional and modern healthcare practices, highlighting their potential as valued resources for upholding and improving human health. In conclusion, the various nutrient outlines of these fruits highlight the importance of integrating a variety of fruits into a balanced diet to maximize nutritional benefits. Further research could investigate the influence of factors such as ripeness and cultivation methods on the nutritive values, providing additional visions for nutritionists, researchers, and the general public.

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