NEW ERA AGRICULTURE MAGAZINE

Not Much Talked Medicinal Rainfed Fruit Crop: Amla (*Phyllanthus emblica L.*)

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Abstract: Thinking of fruit crops, we only remembering the mango, banana, grapes like etc., except amla (*Phyllanthus emblica L.*). Amla is one of the important unfamiliarized therapeutic potential fruit from the rainfed zone globally. Mostly it contains vitamin C, fiber and water with the least amount of fats. It is mostly recommended for jaundice, urinal disorder, respiratory disorders, stomach upset, anti-cholesteromic and cosmetic properties. Nationally six varieties like Banarasi, Chakaiya, Kanchan, Krishna, N. A 7 and BSR 1 are dominant ones. Proper following of cultivation and crop protection approaches (for biotic - Pest & Diseases) and abiotic (boron deficiency) give better outcome in yield from fields at 2 times per year. Additionally, value added things from production to marketing will take time to time for better net profit from amla, accompanied by a memorandum to multinational industries as a better choice for net earnings very soon with proper cultivation.

Key words: Amla, Vit-C, Dyspepsia, Fruit borer, Rust.

Introduction:

From ancient to now, amla (or) Indian gooseberry (*Phyllanthus emblica L.*) is one of the most important tropical (or) subtropical medicinal fruit crop (India, Pakistan, Bangladesh, Sri Lanka, China, Malaysia, Indonesia and south east Asia) in the world belongs to the family Euphorbiaceae with a native of India. In Indian mythology, especially in Tamil it has denoted as 'Undeathing edible fruit'. Amla is the richest sources of vitamin-C (600-1500 mg), Fe (1.2 mg) vitamin K (20 mg), Ca (50 mg), fiber (3.4 g), fat (0.1 g), protein (0.5 g), essential minerals (0.5 g), hydrolysable tannins, alkaloids, phenolic acids, emblicanin A and B, gallic acid, ellagic acid and water (81.8 g). Availability of these essential biological Active controlled temperature and photoperiod that results gain of increased number of compounds are used as priceless medicinal values with unpredicted one and serves in traditional (or) folk medicine, Ayurveda and Siddha for remedying nutritional disorders (Fe- deficiency), anti-hypercholesteraemic, gastro-intestinal disorders, diabetes, anaemic, respiratory disorders, anti-inflammatory (ulcer), dyspepsia (upset stomach), anti-depressant, anti-fatigue, chronic urinal disorders, jaundice, fever, antipyretic and cold. Additionally, it has been reported as hair therapies (hair oil, shampoos) and derma care (skin protectants) and functional food sources (value added products) like juice, jelly, jam,

pickles, sauce and ready-to-eat (drinks). These highly potential contributed from the richest sources of vitamin-C (600-1500 mg), Fe (1.2 mg) vitamin K (20 mg), Ca (50 mg), fibre (3.4 g), fat (0.1 g), protein (0.5 g), essential minerals (0.5 g), hydrolysable tannins, alkaloids, phenolic acids, emblicanin A and B, gallic acid, ellagic acid and water (81.8 g) (Gul *et al*., 2022). These kind of medicinal holding fruits were sold in road ways and not get proper marketing values and their indigenous cultivation, production and marketing technologies of knowledge based is always lacking position from research to farming communities at shadow pages. So, following this consecutive scientific paper generating lessons and clarifications on amla production technologies with science-based approaches like distribution, cultivation and production and commercialization.

Distribution

Globally, amla is highly distributed in tropical and subtropical Asiatic and Europe regions. In India, 50,000 ha. was cultivated mostly in the states of Uttar Pradesh, Madhya Pradesh, Gujrat, Rajasthan, Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Bihar and Maharashtra with production of 1,50,000 tonnes / annum. In Tamil Nadu it has produced 12.1 tonnes from 866 hectares. with productivity of 14 tonnes / ha.

Growth Habitat

The Amla crop is highly resilient to water stress and temperature (46^0C), suitable for garden / barren land. Crop always 3-6 feet in height with branching / bushy appearance with numerous branches that have small leaves. Mostly cultivated in rainfed and irrigated conditions depending upon soil conditions (well drained, fertile soil), pH (adopt >8.5) and salinity adopted also. Nationwide, 6 varieties such as Banarasi (Erect type, yellow fruits, 38 g/fruit and mostly shedding of flowers); Chakaiya (Branching type, green fruits, 30 g/fruit, high fruiting efficiency); Kanchan (select from Chakaya, yellow fruits, elongated flattened fruits, 32g/fruit, high fruiting efficiency); Krishna (select from Banarasi, straight erect, yellow fruits, then sun shined regions shows red, 40g/fruit); N.A 7 (select from Francis type, olive green fruits, 47g/fruit, high fruiting efficiency) and BSR 1 (select from Thimbam forest – TNAU variety, high fruiting capacity 2 times / year, 28g/fruit, pale red coloured fruits, suitable for value added products preparation) are predominantly cultivated in India (Acharya *et al*., 2021).

Cultivation Approaches

Mostly cultivated from grafts (85%) and seedlings (15%) in land pits. Before

cultivation, the land was well ploughed and applied FYM (20 kg. / acre), after making a pit with 60 cm depth and planting a spacing with (6 × 6) (1× 1) m (row × plant) during the first day after rainfall, additionally, tied with plants and poles for support. After 2 years, irrigating except on rainy days within a week. When the crop reaches 75-100 cm height, remove (pruning) the horizontal additional branches to enhance the reproductive stage. After pruning, application of Bordeaux paste is necessary for prevention of fungal infection. When it will be fruiting, 10-40 liters / water / tree is essential to yield from the 2nd year onwards. One ploughing is essential during summer as it generates soil capability of water holding capacity and arrests pest populations from soil and root invaders. Fertigation is followed as per recommendations for individual trees from 1st year to 8th year *viz*., FYM (kg) / N/P/K (g): 20/30/20 – 30/800/640/750). Commonly boron deficiency will occur in fruits by turning as browning of fruits and cracking (use 3g boric acid / 1 liter water) spraying during the fruiting stage (Fig 1). Regular pruning is done in March-April, during maturity given a pole to support the tree to avoid the trees drooping. Harvesting is the vital progress in amla production, because picking is the most careful one, before picking laid the white cotton cloths or wear soft hand cloves is mandatory, it

(A) Fruit borer (Incidence) **(B) Bark borer (Incidence)**

(C) Rust **(D) Boron Deficiency**

Figure 1: Most Vulnerable Biotic and Abiotic Stresses in Amla (*Phyllanthus emblica L.*) Production

avoids the unwanted wounding of fruits and packaging with soft tissue papers (or) press wastes is protected from shaking (Wali *et al*., 2015).

Crop Protection

Commonly, in pests, fruit borer (*Deudorix isocrates*) and bark borer (*Indarbela tetragonis*) cause severe damages in fruits (reproductive stage) and trees (vegetative stage). Keep an orchard as hygienic and release *T. chilonis* 15cc/ha within 10 days interval suppressed fruit borer incidence. Remove the infected trees and make healthy soil is play a protective measure against stem borer. On diseases, rust (*Phakospora phyllanthi*) causes severe loss in yield during

fruiting stage. Using mancozeb 0.2% for 2 weeks interval it gives better results in management (Fig 1).

Commercialization

Naturally, raw fruits are not much priceable, so before cultivation, making value-added things are making a higher return from yield than raw sales. Preparation of homemade, small village-based industry of postharvest products like, pickles, jelly, jam, juice with a help of government training and subsidies given a better outcome in this magic medicinal fruit.

Conclusion

Humans' always think high priced food is a valuable thing, but in health, where it's available is essential one. Amla is water tolerant and contains higher potential of ascorbic acid (vit-C) than other fruits. It has more medicinal values for major human diseases, so regular intake of this fruit as raw, juice or any one way is very helpful to our health. It is safe by yourself, except physicians. So, farmers and the government association of contribution in amla cultivation to retain the farmers' livelihood in edge line ones and increased GDP from villages to nationwide with land reformation also.

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