Technical Bulletin

Woody Pepper: A Potential Novel Spice Crop for the Islands

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Introduction

Andaman and Nicobar Islands are known to harbor wide diversity of flora of economic and ecological significance. Piperaceae is one of the important families in the islands. Some species of this family are naturally distributed in the wild in these islands, while others are deliberately cultivated for commercial use.

Vine showing thick stem with tufty roots

Woody pepper is a related species of black pepper and is locally known as *Choi Jhaal* in the Andaman Islands. Plants look similar to black pepper except for thickened stem and marked differences in leaf morphology.

Vines grow high taking support of big trees in natural habitats. Nodes on the stem of a grown up vine are covered with tuft of numerous roots which are mainly produced to provide anchorage while growing.

This species is unique in the way it is used in culinary preparations. Unlike other *Piper* species, which are used mainly for fruits (*Piper nigrum, Piper longum etc.*) or leaves *(Piper betle, Piper sarmentosum),* stem pieces of woody pepper are used for making culinary dishes.

Uses

Settler Bengali community of Andaman Islands uses small stem pieces in curries to impart pungency and unique flavor. The stem thickness increases with age and thicker stems are preferred in the markets. Traditional users also claim that thickened underground part of the vine is the best quality ingredient for non-vegetarian curries. Consumption of this spice is said to relieve body ache and respiratory troubles.

Thin stem pieces in local market

Thick stems sold in local Market

Experiments at ICAR-CIARI suggested that stem pieces contain meager quantity of essential oil, but the spice is rich in secondary metabolites including piperine, phenolic compounds and has good antioxidant properties.

Why cultivation is required?

Woody pepper is distributed in the forests and some home gardens of Andaman Islands. However, unscrupulous harvesting has disturbed the natural population, thereby making it unsustainable.

Cultivation of this novel genetic resource will serve the dual purpose. It will ensure conservation of this species apart from serving as a profitable source of income to the island farmers.

Multiplication

Non availability of planting material is one of the major issues limiting the cultivation of this novel spice. Traditionally, some farmers take cuttings from mature branches, which are placed horizontally in the soil and compost medium. Sprouting occurs on the nodes and plants are transplanted at 3-4 leaf stage in the polybag. This method; however, is not always successful as the establishment percentage is less due to high mortality especially in the rainy season.

In order to improve the multiplication success, serpentine method was found to be most appropriate. Through this method, mortality during establishment period was significantly reduced, thereby helping production of quality planting material at an

Serpentine method

Plantlets ready for planting

affordable cost. Further, radial serpentine method was also developed which could be used to enhance the multiplication efficiency in woody pepper.

Both these methods, being easy to adopt, could be used by farmers for large scale planting material production for area expansion of this novel spice.

Cultivation hints

Considering the popularity of this spice in the islands, woody pepper can be cultivated both as backyard crop as well as on commercial scale.

In general, field observations have suggested that the vine grows luxuriantly when optimum shade is available for its growth. Trees with rough bark such as mango could be used as standard for cultivating it. Rough bark helps in providing proper anchorage to clinging roots apart from storing moisture in the crevices

Woody Pepper in the backyard

Woody Pepper trained on mango

which will provide congenial microclimate for the vine. For commercial planting, arecanut plantations could be used and one vine per standard could be planted. It is highly sensitive to water logging as root rot is a common problem in areas with poor water drainage. In a well spaced arecanut plantation in hilly uplands, about 550 plants per acre could be planted at the rate of 110 vines per year for five years. This staggered planting could support harvesting of a set of vines every year. During rainy season, planting material could be planted on available standards as per choice.

Life saving irrigation and application of organic manure improves the establishment & growth of vines.

Harvesting and postharvest handling

Stems are harvested when they attain sufficient thickness. initially vines attain harvestable stage after 5-6 years of planting and thereafter it could be harvested at 4-5 years interval. For harvesting, branches are cut, leaves are removed and stem pieces are prepared for sale.

Limb pruning is a viable option in which few branches could be harvested every year and the remaining branches would support the plant growth. About 10 kg fresh stems could be obtained per harvest. Yield varies with management practices followed.

Stems are stored under ambient conditions with limited shelf life of about a week. Refrigerated storage could improve the shelf life by another one week. Some farmers also store excess produce in moist soil; however, long storage alters the produce quality.

Dehydrated powder

Experiments at ICAR-CIARI suggested dehydrated powder as a viable option to improve the shelf life and thereby open up marketing options in major markets of the country. Islands being popular tourist destination, this novel spice could be a boon for the hoteliers to offer unique taste to the cuisines.

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