

Purple Amaranth (*Amaranthus blitum*) - An Underutilized Leafy Vegetable: Biology, Cultivation, Nutritional & Medicinal Importance and Future Prospects

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In the colourful world of leafy vegetables, purple amaranth (*Amaranthus blitum*) has a beauty of its own. With its deep reddish-purple leaves and tender shoots, it easily catches the eye in a vegetable market or home garden. But this attractive leafy vegetable is more than just a splash of colour on the plate. It is a fast-growing crop that performs well under warm climatic conditions and can be cultivated with relatively simple management. Its tender leaves and young stems are commonly used in traditional dishes such as poriyal, keerai masiyal, kootu and soup. Its mild taste and soft texture make it an easy addition to everyday meals. The real value of purple amaranth lies beyond its appearance. Its colourful leaves contain naturally occurring pigments and phytochemicals that are associated with antioxidant properties. The leaves also contribute dietary fibre and several important nutrients, making them a useful part of a balanced diet. For farmers and home gardeners, purple amaranth is equally interesting because of its quick growth and relatively short cropping period. It can be cultivated even in small areas and harvested for fresh greens without requiring a long waiting period. This makes it suitable for kitchen gardens as well as commercial leafy vegetable production.



Despite these qualities, purple amaranth often remains in the shadow of more commonly marketed vegetables. Greater awareness of this colourful leafy green could encourage consumers to diversify their diets while creating additional opportunities for farmers. It also carries a connection to traditional food practices, reminding us that healthy food does not always have to be expensive or complicated. Sometimes, a simple handful of freshly harvested purple amaranth can bring together nutrition, colour, tradition and livelihood on the same plate.

Introduction

What if a handful of purple leaves could add colour, tradition and a little surprise to the same plate? At first glance, purple amaranth (*Amaranthus blitum*) may look like an ordinary leafy vegetable dressed in an unusual colour, but behind its striking purple-red leaves lies a humble crop with an interesting story. While green leafy vegetables usually dominate our kitchens and markets, this colourful amaranth quietly offers its own combination of beauty, taste and goodness. It is a fast-growing leafy vegetable that performs well under warm conditions and can be cultivated in both home gardens and farmers' fields. Its tender leaves and young shoots are commonly used in traditional dishes, making it easy to bring from the field to the family kitchen. The attractive colour of its leaves comes from naturally occurring plant pigments and other bioactive compounds, which make it an interesting addition to the world of leafy vegetables. As people become more conscious about the food they eat, there is growing interest in diverse, locally grown and wholesome vegetables. Purple amaranth is one such overlooked leafy green that connects traditional food habits with modern interest in healthy eating. It is simple enough for a home gardener to grow and offers farmers another short-duration leafy crop to consider. Perhaps it is time to look beyond the usual greens and rediscover the little purple leaf that has been quietly waiting for a place on our plates.

Botanical Description

- **Habit:** It is a fast-growing annual herb, usually erect, ascending or sometimes spreading, and can reach about 30–100 cm in height. The plant may remain compact or become branched depending on growing conditions.
- **Root system:** It develops a main root with several lateral roots, helping the plant establish firmly in the soil and absorb water and nutrients efficiently.
- **Stem:** The stem is slender to moderately stout, smooth and usually hairless. It may be green, reddish or purplish in colour and can be simple or branched, especially towards the base and upper portions of the plant.
- **Leaves:** Leaves are simple, alternate and long-petiolate, generally ovate to rhomboid-ovate in shape. Their colour can vary from green to reddish-green, purple or deep reddish-purple, depending on the plant type and growing conditions. The leaves are soft and tender, making them the main edible part of the crop.
- **Inflorescence:** Dense axillary and terminal clusters. They occur in dense clusters in the leaf axils and towards the tips of the branches.
- **Flowers(monoecious):** The flowers are very small and inconspicuous. Male and female flowers occur together in the same clusters, with greenish to reddish shades.
- **Fruit:** The fruit is a small, globular to broadly ovoid capsule, about 2 mm long. It is generally one-seeded and may remain closed or split irregularly when mature.
- **Seeds:** The seeds are very small, round to slightly flattened and dark brown to black, usually around 1–1.75 mm in diameter. Their small size allows the plant to produce and disperse numerous seeds.
- **Pollination:** Mainly wind pollinated (Anemophilous)



Area and Distribution

Purple amaranth (*Amaranthus blitum*) is a widely distributed leafy vegetable found mainly in warm and tropical regions. It grows well in sunny conditions and can be seen in cultivated fields, home gardens and sometimes in open or disturbed areas. It's simple growing habit and ability to adapt to different conditions have helped it spread across several parts of the world. In India, including Tamil Nadu, amaranth is a familiar leafy vegetable and is grown for its tender leaves and shoots. It is especially valued in local food traditions, where fresh greens are regularly used in home cooking. Because it grows quickly and does not require a large growing area, purple amaranth can be a useful crop for both farmers and kitchen gardeners, bringing a colourful and locally grown green from the field straight to the plate.

Nutritive Value

Purple amaranth (*Amaranthus blitum*) may look like a simple leafy green, but it is packed with useful nutrients. Its fresh leaves provide dietary fibre, protein, vitamins and minerals, including calcium, iron and potassium. They also contain vitamin C and carotenoids, which contribute to a healthy diet. The leaves are relatively low in calories, making them a good choice for people who want to include more vegetables in their everyday meals. What makes purple amaranth especially interesting is its natural purple-red colour, which comes from plant pigments and other bioactive compounds. These compounds have antioxidant properties and add to the functional value of the vegetable. So, the next time a bunch of purple amaranth reaches your kitchen, it is worth remembering that those colourful leaves are not just attractive—they can add valuable nutrients and beneficial plant compounds to a simple home-cooked meal.

Medicinal Uses

More Than Just a Leafy Green

Purple amaranth (*Amaranthus blitum*) has been part of traditional diets for generations, where leafy greens are valued for keeping the body healthy and strong. Its leaves provide fibre, vitamins, minerals and naturally occurring antioxidant compounds, making them a useful addition to regular meals.

A Friend to Digestion

The dietary fibre present in the leaves can support normal digestion and healthy bowel function. Including fibre-rich greens as part of everyday meals is a simple way to maintain a healthy digestive system.

Natural Protective Compounds

The beautiful purple-red colour of the leaves is a clue to their rich collection of natural plant pigments and bioactive compounds. Some of these compounds show antioxidant activity, helping the body deal with oxidative stress. This is one reason colourful leafy vegetables are receiving increasing scientific interest.

A Simple Addition to a Healthy Diet

Purple amaranth should not be viewed as a medicine for treating a specific disease. Instead, its value lies in being a nutritious traditional leafy vegetable that can complement a balanced diet. A simple serving of freshly cooked amaranth can therefore bring together taste, tradition and beneficial plant compounds on the same plate.

Cultivation Practices

- **Climate:** Purple amaranth is a warm-season leafy vegetable and grows well under warm, sunny conditions. It can be cultivated for much of the year in suitable tropical and subtropical regions.
- **Soil:** A fertile, well-drained loamy soil rich in organic matter is ideal. Waterlogging should be avoided, as excess moisture can affect healthy growth.
- **Land preparation:** The field is brought to a fine, loose tilth by ploughing and levelling. Raised beds or convenient-sized beds can be prepared so that irrigation and drainage are

easy to manage. Incorporating well-decomposed farmyard manure or compost helps provide a good start to the crop.

- **Sowing:** Since the seeds are extremely small, they are usually mixed with fine sand or soil before sowing to achieve uniform distribution. Seeds can be broadcast over prepared beds or sown in rows. A shallow sowing depth of about 1–2 cm is suitable.
- **Seed rate:** For amaranth leafy vegetables, a seed rate of around 1.5–2.5 kg/ha is commonly recommended, depending on the production method and cultivar.
- **Spacing:** After germination, excess seedlings can be thinned to provide adequate space for healthy growth. A spacing of approximately 20 × 20 cm is commonly recommended for amaranth.
- **Water management:** The crop needs a steady supply of moisture, particularly during early growth. Irrigation should be given when required, while avoiding standing water. For leafy types, watering after harvesting can encourage fresh regrowth.
- **Nutrient management:** Amaranth responds well to organic manure and balanced fertilization. Well-decomposed FYM or compost can be incorporated during land preparation, followed by suitable fertilizer application based on soil fertility and local recommendations.
- **Weed management:** Young amaranth plants can be easily suppressed by weeds. Light hoeing and hand weeding during the early stages help maintain a clean crop. Once the plants establish quickly, their vigorous growth can reduce weed competition.
- **Pest and disease care:** Common problems in amaranth include leaf-eating caterpillars, leaf webbers, amaranth weevil and leaf spot. Regular field observation, removal of affected plant parts and good field sanitation are useful first steps.
- **Harvesting:** This is where purple amaranth becomes especially attractive to growers. The tender crop can be harvested about 3–4 weeks after sowing, either by uprooting the whole plant or by cutting it above ground. For repeated harvests, the first cutting can be made around 3 weeks after transplanting, leaving enough leaves and buds for regrowth.
- **Yield:** Under suitable management, *Amaranthus blitum* can produce around 1 kg/m² from a once-over harvest, while repeated cutting can provide about 1.5 kg/m² over two to three harvests. Actual yield varies with soil, season, plant density and management.

Why is purple amaranth underutilized?

A Familiar Green That Gets Overlooked

Purple amaranth (*Amaranthus blitum*) is not a new vegetable—it has been part of traditional food habits for a long time. Yet, compared with popular leafy vegetables, it receives much less attention in today's markets. Its simple appearance and local availability sometimes make people overlook its value.

Limited Market Demand

One major reason for its underutilization is limited consumer awareness and market demand. Many consumers are more familiar with common green or red amaranth and may not actively look for purple amaranth. When demand is low, farmers naturally hesitate to grow it on a larger scale.

Small-Scale Cultivation

Purple amaranth is often grown in small plots, home gardens or for local consumption rather than as a major commercial crop. Because it is not widely cultivated on a large scale, its availability can be seasonal and restricted to certain local markets.

Lack of Awareness

Many people simply do not know what makes purple amaranth special. Its attractive colour, quick growth and potential value as a leafy vegetable are not widely promoted. Better awareness among consumers, farmers and vegetable sellers could help bring this crop into the spotlight.

Less Attention in Research and Promotion

Compared with major vegetable crops, underutilized leafy vegetables often receive less attention in areas such as crop improvement, value addition, organized seed supply and

commercial promotion. This can limit the development of improved cultivation practices and new products based on purple amaranth.

A Crop Waiting for a Second Look

Purple amaranth does not necessarily need to become a mainstream vegetable overnight. Sometimes, giving a forgotten crop a little more attention is enough to create change. With better consumer awareness, improved marketing, value-added products and encouragement for farmers, this colourful leafy vegetable could move from the margins of the market to a more visible place on our plates.

Future Prospects

A Crop with New Possibilities

Purple amaranth (*Amaranthus blitum*) has the potential to move beyond its traditional place in home cooking. Its attractive purple leaves, quick growth and easy cultivation make it an interesting crop for both farmers and modern consumers.

Better Opportunities for Farmers

With greater awareness and improved market demand, purple amaranth could become a useful short-duration crop, especially for small-scale growers. Better seed availability, cultivation practices and market support could encourage more farmers to grow it.

Scope for New Foods

Its attractive colour also opens the door for salads, dried greens, leaf powders and other value-added products. Such products could improve its shelf life and introduce purple amaranth to consumers who may not be familiar with it.

Room for Research

There is still plenty to explore, including better-yielding types, improved quality, pest and disease resistance, and value-added uses. More research could help unlock the full potential of this underutilized leafy vegetable.

A Little Leaf with a Big Future

Purple amaranth may be a humble crop today, but it has the potential for a brighter tomorrow. With farmer support, consumer awareness, research and better marketing, this colourful leafy vegetable could move from being overlooked to becoming a valued part of our fields, markets and kitchens.

Conclusion

Purple amaranth (*Amaranthus blitum*) may look like a simple leafy vegetable, but its striking colour, quick growth, traditional food value and useful qualities make it a crop worth noticing. It has the ability to fit easily into farmers' fields as well as home gardens, yet it remains underappreciated compared with more familiar leafy greens. Giving this humble crop more attention can benefit farmers, consumers and our food traditions alike. With better awareness, research, marketing and value addition, purple amaranth can find a stronger place in our diets and markets. Sometimes, the smallest leaves can carry a big story—and purple amaranth is one such leaf waiting to be rediscovered.

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