PLANT FACT SHEET

Amaranthus tricolor L.

GENUS *Amaranthus* **FAMILY** Amaranthaceae

COMMON NAMES Chinese amaranth, Red amaranth

EDIBLE PARTS AND USES

Edible parts: Leaves, Seeds, Vegetable, Flowers, Leaves - tea

The young leaves and stems are cooked and eaten as a vegetable.

DESCRIPTION

A herb about 1 m high and spreads 45 cm wide. A small annual leafy green. An upright, much branched annual with a thin membrane covering the stems. Sometimes the plant lies over. The stems are angular. The plant branches in the upper part of the plant. It is smooth and grows from seed each year. Leaves have long leaf stalks which can be 5-10 cm long. Leaves vary in shape, size and colour. The leaf blade can be 5-25 cm long by 2-6 cm wide. Leaves are dull purplish and the top leaves can be yellow or red. Some types have coloured leaves or patterns on the leaves. It has a clumpy seed head at the top. The flower spike at the top can be 30 cm long. The seed are 1-1.2 mm across and black.

HABITAT

A tropical and subtropical plant. It grows in many tropical and warm temperate places. Plants grow wild in waste places. Amaranths grow from sea level to 2400 m altitude in the equatorial tropics. It prefers well drained soils. It needs a sunny position to yield well. For amaranth seeds to germinate they need a temperature above 15°-17°C. In the higher areas of the equatorial highlands above 1800 m., temperatures on the average are probably below this during the cooler months. It may be more difficult to get amaranths started during these months. It can grow in arid places. It suits hardiness zones 8-11. In Yunnan.

PRODUCTION

Cultivation

The very small seeds of these plants are scattered over the ashes or fine soil in fertile ground. The seed are normally spread by rubbing the dry seed heads between the hands. Some types are self sown. These plants grow in most tropical countries. The soil must be fertile. If they are put in an old garden they will only grow very poorly. So they are either put in a new garden site when it is cleared from bush, or in build up the old ground by adding compost. The small gardens close to a house can often be built up to a good fertility by using the scraps and ashes and things that are left over near houses. Amaranths need high amounts of two nutrients, nitrogen and potash. The ashes from fires are high in potash so farmers scatter seeds of amaranth over areas where they have burnt. Amaranths are tropical plants grown in most tropical countries. Normally the hotter it is the better

they grow. They also like plenty of sunlight and do not suit shaded places. The more sunlight the better they grow. They need to have water most of the time they are growing. In areas with a high rainfall this is mostly not a big problem.

Harvesting and Seed Production

Plants can be harvested when small due to thinning out closely spaced plants. These can be either transplanted or eaten cooked. Plants can be harvested whole or have top leaves harvested several times. Harvesting begins after 4-7 weeks and can continue over 2 months.

NOTES

There are about 60 Amaranthus species. Chemical composition (Chinese sample): Protein = 3.5%. Fat = 0.24%. Carbohydrate = 6.6%. Reported rich in Vitamin A, with moderate amounts of Vitamins B1 and C. Chemical composition (after Hooper) (Green variety, April [Indian sample]): Water = 90.6% (fresh). Fat = 4.30% (dry). Albumenoids = 27.61% (dry). Fibre = 7.85% (dry). Ash = 23.98% (dry). Carbohydrates = 36.26% (dry). Nitrogen = 4.42% (dry). Phosphoric acid = 1.47% (dry). Silicates = 2.58% (dry). (Green variety, November): Water = 82.60% (fresh). Fat = 4.50% (dry). Albumenoids = 25.72% (dry). Carbohydrates = 36.84% (dry). Fibre = 11.89% (dry). Ash = 21.05% (dry). Nitrogen = 4.12% (dry). Phosphoric acid = 1.35% (dry). Silicates = 2.20%. (Red variety, April): Water (fresh) = 91.0%. Fat = 5.34% (dry). Albumenoids = 25.46% (dry). Carbohydrates = 34.71% (dry). Fibre = 6.96% (dry). Ash = 27. (dry). Nitrogen = 4.07% (dry). Phosphoric acid = 1.56% (dry). Silicates =1.97% (dry). (Red variety, November): Water = 84.5% (fresh). Fat = 3.77% (dry). Albumenoids = 24.75% (dry). Carbohydrates = 37.90% (dry). Fibre = 11.55% (dry). Ash = 22.03% (dry). Nitrogen = 3.96% (dry). Phosphoric acid = 1.53% (dry). Silicates = 1.57% (dry).

It has 2.3 mg per 100 g dry weight and 1.2 mg fresh weight of alpha-tocopherol (Vitamin E).

PICTURES



Credit: Food Plants International (Bruce French)



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REFERENCES

Altschul, S.V.R., 1973, Drugs and Foods from Little-known Plants. Notes in Harvard University Herbaria. Harvard Univ. Press. Massachusetts. no. 894

Anderson, E. F., 1993, Plants and people of the Golden Triangle. Dioscorides Press. p 202

Ambasta S.P. (Ed.), 2000, The Useful Plants of India. CSIR India. p 33 (As Amaranthus gangeticus)

Andrare, G. M. M., et al, 2023, Plantas Alimenticias Nao Convencionais (PANC) Nos Levantamentos Etnobotanicos do Brazil. Novos Cadernos NAEA v. 25 No. 2 p 197

Ara, R. I. T., 2015, Leafy Vegetables in Bangladesh. Photon eBooks. p 10 (As Amaranthus gangeticus)

Arinathan, V., et al, 2007, Wild edibles used by Palliyars of the western Ghats, Tamil Nadu. Indian Journal of Traditional Knowledge. 6(1) pp 163-168

Aryal, K. P., et al, 2018, Diversity and use of wild and non-cultivated edible plants in the Western Himalaya. Journal of Ethnobiology and Ethnomedicine (2018) 14:10

Azam, F. M. S., et al, 2014, Are Famine Food Plants Also Ethnomedicinal Plants? An Ethnomedicinal Appraisal of Famine Food Plants of Two Districts of Bangladesh. Evidence-Based Complementary and Alternative Medicine Volume 2014, Article ID 741712, 28 pages

Bandyopadhyay, S. et al, 2009, Wild edible plants of Koch Bihar district, West Bengal. Natural Products Radiance 8(1) 64-72

Bao Bojian; Steve Clemants, Thomas Borsch, Amaranthaceae [Draft], Flora of China

Barua, U., et al, 2007, Wild edible plants of Majuli island and Darrang districts of Assam. Indian Journal of Traditional Knowledge 6(1) pp 191-194 (As Amaranthus gangeticus)

Bodkin, F., 1991, Encyclopedia Botanica. Cornstalk publishing, p 74

Borrell, O.W., 1989, An Annotated Checklist of the Flora of Kairiru Island, New Guinea. Marcellin College, Victoria Australia. p 47

Brickell, C. (Ed.), 1999, The Royal Horticultural Society A-Z Encyclopedia of Garden Plants. Convent Garden Books. p 106

Burkill, I.H., 1966, A Dictionary of the Economic Products of the Malay Peninsula. Ministry of Agriculture and Cooperatives, Kuala Lumpur, Malaysia. Vol 1 (A-H) p 127 (As Amaranthus gangeticus)

Burkill, H. M., 1985, The useful plants of west tropical Africa, Vol. 1. Kew.

Burnie, G. (Ed.), 2003, Annuals and Bulbs. The Gardener's Handbooks. Fog City Press. p 118

Cao, Y., et al, 2020, Ethnobotanical study on wild edible plants used by three trans-boundary ethnic groups in Jiangcheng County, Pu'er, Southwest China. Journal of Ethnobiology and Ethnomedicine (2020) 16:66

Cent. pl. I:32. 1755 (Amoen. acad. 4:294. 1759) (As Amaranthus mangostanus)

Chao, Pi-Yu, et al, 2014, Antioxidant Activity in Extracts of 27 Indigenous Taiwanese Vegetables. Nutrients 2014, 6, 2115-2130 (As Amaranthus mangostanus)

Chauhan, D., et al, 2014, Diversity of leafy vegetables used by tribal peoples of Chhattisgarh, India. Int.J.Curr.Microbiol.App.Sci (2014) 3(4): 611-622 (Also as Amaranthus gangeticus)

Chin, H. F., 1999, Malaysian Vegetables in Colour. Tropical Press. p 16 (As Amaranthus gangeticus)

Ching, L. S. & Mohamed, S., 2001, Alpha-Tocopherol Content in 62 Edible Tropical Plants. J. Agric. Food Chem. 2001, 49, 3101−3105 (As Amaranthus gangeticus)

Chon, S. et al., 2009, Total Phenolics Level, Antioxidants Activity and Cytotoxicity of Young Sprouts of Some Traditional Korean Salad Plants. Plant Foods for Human Nutrition. 64:25-31 (As Amaranthus mangostanus)

Chowdhury, M. & Mukherjee, R., 2012, Wild Edible Plants Consumed by Local Communities of Maldah of West Bengal, India. Indian J.Sci.Res.3(2) : 163-170

Creasey, R., 2000, Edible Mexican Garden. Periplus. p 22 (Also as Amaranthus gangeticus)

Cundall, P., (ed.), 2004, Gardening Australia: flora: the gardener's bible. ABC Books. p 144

Dey, A. & Mukhererjee, A., 2015, Living and Survival Amidst Hunger: Wild Edible Botanicals as a Prime Forest Productivity in the Rural Purulia District, West Bengal, India from Colonial to Present. Research Journal of Forestry 9(3): 71-86 (As var. gangeticus)

Dyani, S.K., & Sharma, R.V., 1987, Exploration of Socio-economic plant resources of Vyasi Valley in Tehri Garwhal. J. Econ. Tax. Bot. Vol. 9 No. 2 pp 299-310

Facciola, S., 1998, Cornucopia 2: a Source Book of Edible Plants. Kampong Publications, p 8 (Also as Amaranthus gangeticus and Amaranthus mangostanus)

Feld, D., 2021, A Systematic Checklist of Food Plants, including Herbs and Spices, and with an Index. p 8

Foo, J.T.S.(ed), 1996, A Guide to Common Vegetables. Singapore Science Foundation. p 10

Franklin, J., Keppel, G., & Whistler, W., 2008, The vegetation and flora of Lakeba, Nayau and Aiwa Islands, Central Lau Group, Fiji. Micronesica 40(1/2): 169–225, 2008

French, B., 1986, Food Plants of Papua New Guinea, Asia Pacific Science Foundation p 55

French, B.R., 2010, Food Plants of Solomon Islands. A Compendium. Food Plants International Inc. p 65

Gillaumin, R., 1954, Les Plantes utiles des Nouvelles-Hebrides (fin et complement) In: Journal d'agriculture tropicale et de botanique appliquee Vol. 1, No. 10-12 pp 453-460 (As Amaranthus gangeticus)

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