Herbal Garden (Muligai Vanam)

Cholam

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Botanical Name	:	*Sorghum bicolor* (L.) Moench..
Tamil Name	:	Cholam
Sanskrit Name	:	Yavanala; Jurnahva; Devadhanya
English Name	:	Sorghum; Great Millet; Jowar; Milo

Distribution and Habit



Sorghum (*Sorghum bicolor*), is one of the most important dry-land cereal crops belonging to Poaceae family. It is a highly variable small-seeded monocotyledon with extensive genetic diversity. It is native to north-eastern Africa, particularly Ethiopia and Sudan, and was domesticated around 5000-8000 years ago. It was introduced into India during the first millennium BC and is now widely cultivated in arid and semi-arid regions of Africa and Asia.

It is a highly drought and heat-tolerant crop, adaptable to poor soils and is grown from sea level up to 2500 m altitude. It is an annual herbaceous coarse cereal growing to a height of 0.5 - 5.0 mts. depending on variety and environment. Maturation starts in 90-140 days. Culms are erect, solid, with alternate leaves, broad, linear-lanceolate, 30-135 cms. long x 3-10 cms. wide, glabrous with waxy surface and prominent white midrib. The inflorescence is a compact to loose panicle, terminal, 5-60 cms. long, bearing paired spikelets. The grains are spherical to oval, 4-8 mms. diameter, white, yellow, red or brown in colour.

Parts used: Seed as grains; Leaves as fodder

Phyto-chemical constituents

Carbohydrates, proteins with high essential amino acid leucine, dietary fibre, resistant starch, minerals (iron, zinc, potassium, phosphorus), B-complex vitamins, tannins (condensed tannins/proanthocyanidins), phenolic acids (ferulic acid, p-coumaric acid, caffeic acid, gallic

acid), flavonoids, anthocyanins (luteolinidin and apigeninidin - 3-deoxyanthocyanidins), phytosterols (β-sitosterol, stigmasterol), policosanols and dhurrin

Uses



Sorghum grains can be cooked whole like rice, popped like popcorn or ground and used as flour for roti, dosa, porridge, upma and baked products. Sweet sorghum types are used for jaggery, syrup and ethanol production. The stem is used as green fodder, dry fodder and as building material. It is also used for brewing traditional beers and as raw material for industrial starch and biofuel.

Medicinal uses

Sorghum is a staple food for millions in the dry regions of India and Africa. The grain is higher in dietary fibre, protein and antioxidant potential than rice and maize and is completely gluten-free. It is traditionally used as a cooling, diuretic and astringent food grain. Recent studies have highlighted significant medicinal properties. Sorghum is gluten-free and highly recommended for celiac patients and wheat-allergy individuals. The high concentration of 3-deoxyanthocyanidins, tannins and phenolic acids in sorghum has shown strong antioxidant, anti-inflammatory and anti-proliferative activities (Awika and Rooney, 2004). Sorghum phenolics have been reported to inhibit starch digesting enzymes like α-amylase and α-glucosidase, thereby reducing postprandial hyperglycemia and is beneficial in type 2 diabetes management (Kim et al., 2009). The high dietary fibre and policosanol content helps in cholesterol binding and lowering LDL cholesterol and atherosclerogenic risk. The resistant starch and slow digestible starch act as prebiotic and help in weight management and gut health (Dykes and Rooney, 2006). Sorghum bran extracts have demonstrated anti-tumorigenic and anti-carcinogenic effects against colon and breast cancer cell lines by inducing apoptosis (Yang et al., 2009). It is also reported to be useful in anaemia due to its iron content, and as a tonic for bone health for its high magnesium and phosphorus content.