Ensete ventricosum (Welw.) Cheesman

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Local and common names: እንሰት· Enset (Amh); Waarqee, Qooccoo (Oro); Asat (Gur); Uuthi (Gam); Weise (Kam); Wassa (Sid); Natiriya (Wol); Ethiopian banana, Abyssinian banana, Pseudo-banana, False banana, Wild banana (Eng)

Voucher and identification: GA064/AHRI/2025

Synonyms: *E. ventricosum* is known by 33 synonyms, of which *Ensete ventricosum* var. *montbeliardii, Ensete arnoldianum* and *Ensete bagshawei* are the later published names.

Varieties recorded in Ethiopia: There are officially registered and released improved varieties in Ethiopia that include *yanbule*, *gewada*, *endale*, *kelisa*, *zereta*, and *messina*.

Family: Musaceae

Botanical and habitat distribution

E. ventricosm is a perennial plant that grows up to 6-12 meters high. Its unbranched 'stems' are actually pseudostems (1.5-5 meters tall) made up of tightly-overlapping leaf sheaths, left behind following the death of the leaf blade. The pseudostem widens at the base giving rise to the specific name *ventricosum* (a Latin word for swollen or inflated on one side). Both the leaf midrib and the pseudostem are often variably stained purple or purplish-brown. The main pseudostem dies after flowering and fruiting. The yellow or orange-coloured fruits are 8-15 cm long and up to 4-5 cm in diameter. There are usually 15-25 very hard, black seeds with varying sizes per fruit embedded in an edible but tasteless orange pulp. In Ethiopia, *E. ventricosum* is a widely cultivated staple food

Photo credit: Nuhamin Girma

est, often in clearings, gullies and near streams at altitudes mainly ranging from 1000-2400 masl.

Conservation status

E. ventricosum has been categorized as a species of least global concern in the IUCN red list.

Propagation method

The plant can be propagated both sexually and asexually. However, it is commonly and traditionally propagated vegetatively propagated vegetatively from its underground corm by stimulating multiple shoots (suckers).

Cultivation in botanic garden

The species was planted at AHRI-ALERT botanic garden in October 2024 from a whole plant dug up at the AHRI-ALERT Health Village (Accession number 0122).

Ethnomedicinal uses

E. ventricosum is traditionally used by different ethnic groups in Ethiopia to treat human ailments. Leaves and pseudostem of the plant are most frequently used parts as medicine The boiled Amicho and Bulla of the tayo clone in Bonga, and ado, Genticha, Midasho, Gediwocho, and Kiticho clones in the Sidama region are mixed with milk and used to treat bone fractures and swellings with pus. The Amicho of the choro clone in Bonga and asikala clone in Sidama are formulated mixed with butter and milk and given to woman after delivery to stimulate placenta discharge.

Major phytoconstituents

Enset primary contains carbohydrate, in the form of Starch. Phytochemical analysis of Enset has revealed the presence of phenylphenalenone phenols. Enset also contains high fiber and minerals (iron, zinc and calcium) as well as arginine.

Pharmacological and safety evidences

Preclinical evidences

***Organo-protective effects*:** The hydromethanolic extract of the corm of *E. ventricosum* (Welw.) Cheesman demonstrated hepatoprotective properties and ameliorated nephrotoxicity induced by antituberculosis drugs (isoniazid and rifampicin) in mice. In addition, the aqueous root extract of *E. ventricosum* showed significant antiulcer and gastroprotective activities.

Antioxidant effect: There is also a reportof antioxidant activity, with the corm showing a particularly strong ferric reducing antioxidant power.In another study, the DPPH radical-scavenging activity and total antioxidant capacity of Kocho extracts were evaluated using the DPPH assay and the phosphomolybdenum method. The results showed that fermented Kocho had higher antioxidant and DPPH scavenging activities than the unfermented product, with methanolic extracts performing better than aqueous extracts.

***Others pharmacological effects*:** The plant contains phenylphenalenones with antitumor, antibacterial, nematocidal effects.

As a nutraceutical value: High calcium levels, particularly in corm, reported to have significant value for bone strength, growth and repair while high arginine content, linked to collagen formation, tissue repair, and wound healing. It also contains notably high concentrations of iron and zinc so highlighting the importance of its potential dietary source of iron ultimately to fight against anemia.

As a pharmaceutical excipient: Its starch has remarkable pharmaceutical application such as disintegrant, binder, gelling agent and sustained release agent.

Clinical evidences

No clinical reports found.

Safety

Acute oral toxicity testing of the 80% methanolic extract of *E. ventricosum* corm showed no detectable toxicity up to a dose of 2000 mg/kg. *E. ventricosum* is generally considered safe for human and animal consumption when processed traditionally. As a staple food for millions of people in Ethiopia, it is a non-toxic crop.

Research gaps and recommendations

Introduce standardized traditional fermentation protocols for bulla production that ensure consistent nutritional quality, safety, and consumer acceptability.

References

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