Encephalartos senticosus (Zamiaceae): a new species from northern KwaZulu-Natal and Swaziland

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Encephalartos senticosus is described from the Lebombo Range of northern KwaZulu-Natal and Swaziland. Vegetatively it is similar to *E. lebomboensis* Verdoorn with which it was previously confused, but differs in its male cones being stalked instead of sessile with the exposed faces of the microsporophylls drawn out into drooping beaks instead of raised pyramidally, and the megasporophylls with exposed faces pyramidally raised instead of more or less flat.

Keywords: *Encephalartos*, new species, Zamiaceae.

Vorster (1995) demonstrated that the name *Encephalartos lebomboensis* Verdoorn has been misapplied since its original publication (Verdoorn 1949). The name does not apply to plants growing on the Lebombo Range in northern KwaZulu-Natal and Swaziland (Dyer 1965, 1966), but to material in the Pongola River valley as well as a disjunct population on the Lebombo Range in Mpumalanga. The plants on the Lebombo Range in KwaZulu-Natal and Swaziland represent a separate and undescribed species.

Encephalartos senticosus *Vorster*, sp. nov.

Plantae arborescentes, interdum base racemosae, trunco ad 4 m alto. *Folia* breviter petiolatae, pinnis medianis in marginibus ambobus spinosis, pinnis basalibus gradatim redactis, infimis spinosis. *Microstrobili* pedicellati, plerumque 3–4, faciebus apertis microsporophyllorum in rostris demissis extensis; *megasporophyllis* faciebus apertis laevibus.

E. lebomboensi Verdoorn forma vegetativa similaris; sed microstrobilis pedicellatis non sessilibus, faciebus apertis microsporophyllorum in rostris demissis extensis non pyramidalibus elevatis et megasporophyllis faciebus apertis pyramidalibus elevatis non plusminusve planis differt.

TYPUS.— Swaziland: North-east of Siteki in Mlawula Game Reserve (leaf and microsporophylls), *Vorster 2990* (PRE, holotypus; K, LE, MO, FTG, isotypi).

Plant arborescent, often suckering from base to form clumps. *Stem* erect but often leaning to some extent, up to 4 m tall and about 300 mm thick, covered by remains of leaf bases; crown somewhat woolly. *Leaves* 1 100–1 500(–1 800) mm long, rigid and straight to somewhat arched; petioles unarmed, glabrous, 50–200 mm long and and 15–18 mm thick; rachis yellowish; basal leaflets progressively reduced in size towards base of leaf with the lowermost produced as prickles, median leaflets spaced 20–35 mm apart, succubously overlapping or not, directed towards apex of leaf at angle of about 30°, opposing leaflets set at angle of about 135° to each other, glossy dark green, very narrowly ovate with both margins usually dentate (uncommonly entire) and apices acute and pungent, (80–)120–180 mm long and 14–20(–27) mm wide. *Male cones* on stalks up to 100 mm long, very narrowly ovoid, 3–4 per stem, covered with sparse and very short tawny felt-like indumentum, orange to orange-yellow, 300–500 mm long and up to 100 mm across; median exposed faces of microsporophylls rhombic, drawn out into prominent drooping beaks towards central facet, only central facet well defined. *Female cones* ovoid, 2–3 per stem, covered with sparse and very short tawny felt-like indumentum, pale apricot-yellow, about 450 mm long and 220 mm across, exposed faces of megasporophylls smooth and raised pyramidally towards central facet, other facets poorly defined; sarcotesta of seeds bright red. (Figures 1 & 2).

Phenology

Cones are produced in February and early March, pollination takes place in late April and early May, and seeds are released in October. The seeds germinate one year later.

Affinities and diagnostic features

E. senticosus seems to be closely related to *E. lebomboensis* Verdoorn, as testified by the vegetative similarity, and the apricot-yellow cones of which the exposed faces of the megasporophylls are smooth. It differs consistently in its male cones being 3–4 per stem instead of *mostly* solitary, clearly stalked instead of sessile, with exposed faces of the microsporophylls drawn out towards the central facets into drooping beaks instead of being raised pyramidally, and its multiple instead of solitary or uncommonly paired female cones with the exposed faces of the megasporophylls raised pyramidally towards the central facets instead of being almost flat with poorly defined central facets (Vorster 1995). Vorster (1995) discussed his reasons for awarding these plants specific rather than subspecific status.

Geographical distribution and habitat

E. senticosus is not uncommon along the summit of the Lebombo range, from south of the Josini Dam northwards to a few kilometers beyond Siteki in Swaziland, from where its place is taken by the northern population of *E. lebomboensis* (Figure 3). It can sometimes be seen on very dry and sunny cliffs, but more commonly it occurs on gentle slopes along the summit, amongst boulders and within bush clumps, more or less in direct sunlight, at altitudes of 400 to 800 m.

Conservation status

Vast numbers have been removed from the habitat for landscaping purposes over the last 50 years. It is by no means as abundant as formerly, and its continued existence in nature is cause for concern.

Material studied

Numerous cultivated plants, plus the following selected herbarium specimens:

—**2631**: North-east of Siteki (–BD), *Vorster 2990* (FTG, K, LE, MO, PRE); North-east of Groenpan in Mlawula Game Reserve (–BD),

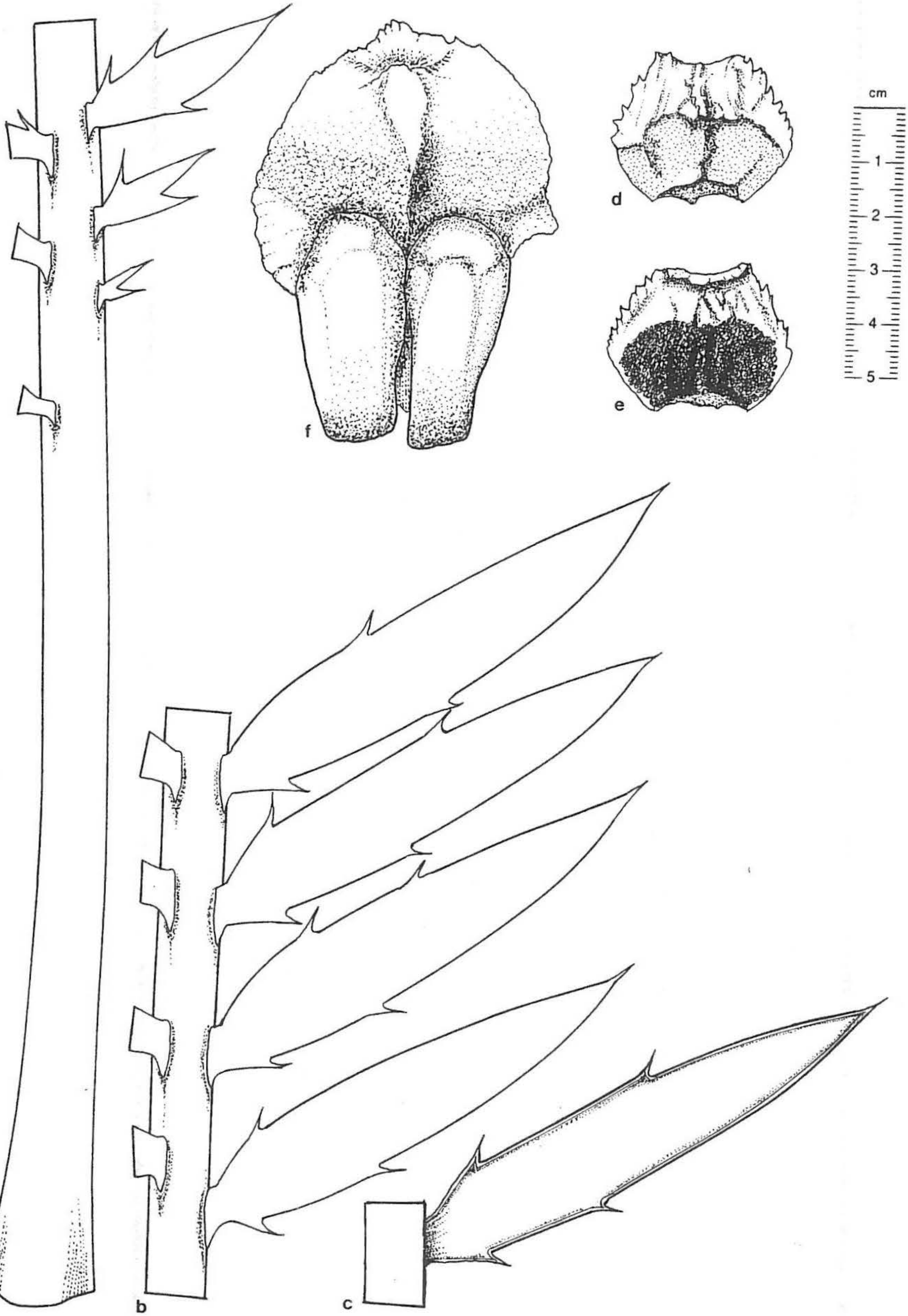


Figure 1 *Encephalartos senticosus*: (a) petiole and proximal portion of leaf showing reduction of leaflets towards petiole, (b) median leaflets in adaxial view, (c) a median leaflet in abaxial view, (d) microsporophyll in adaxial view, (e) microsporophyll in abaxial view, (f) megasporophyll in abaxial view. From *Vorster 2991*. *Del.* E.C. Vorster.

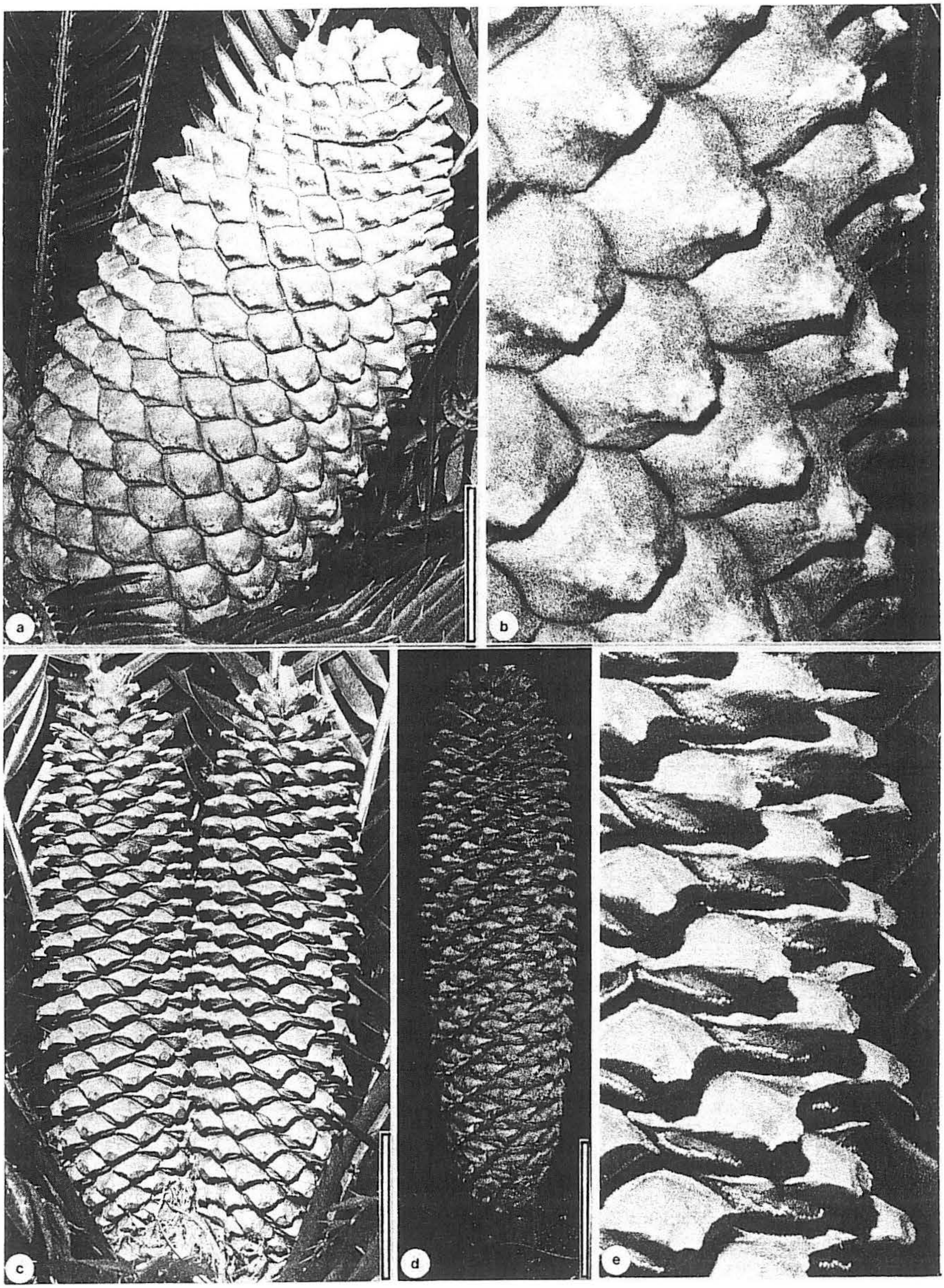


Figure 2 *Encephalartos senticosus*: (a) female cone, (b) detail of same showing pyramidally raised exposed faces of megasporophylls, (c) male cones, (d) male cone, (e) detail of male cone in (c), showing exposed faces of microsporophylls drawn out as drooping beaks. Scale bars = 100 mm. a–c, e from plants near Goba; d from plant at Josini.

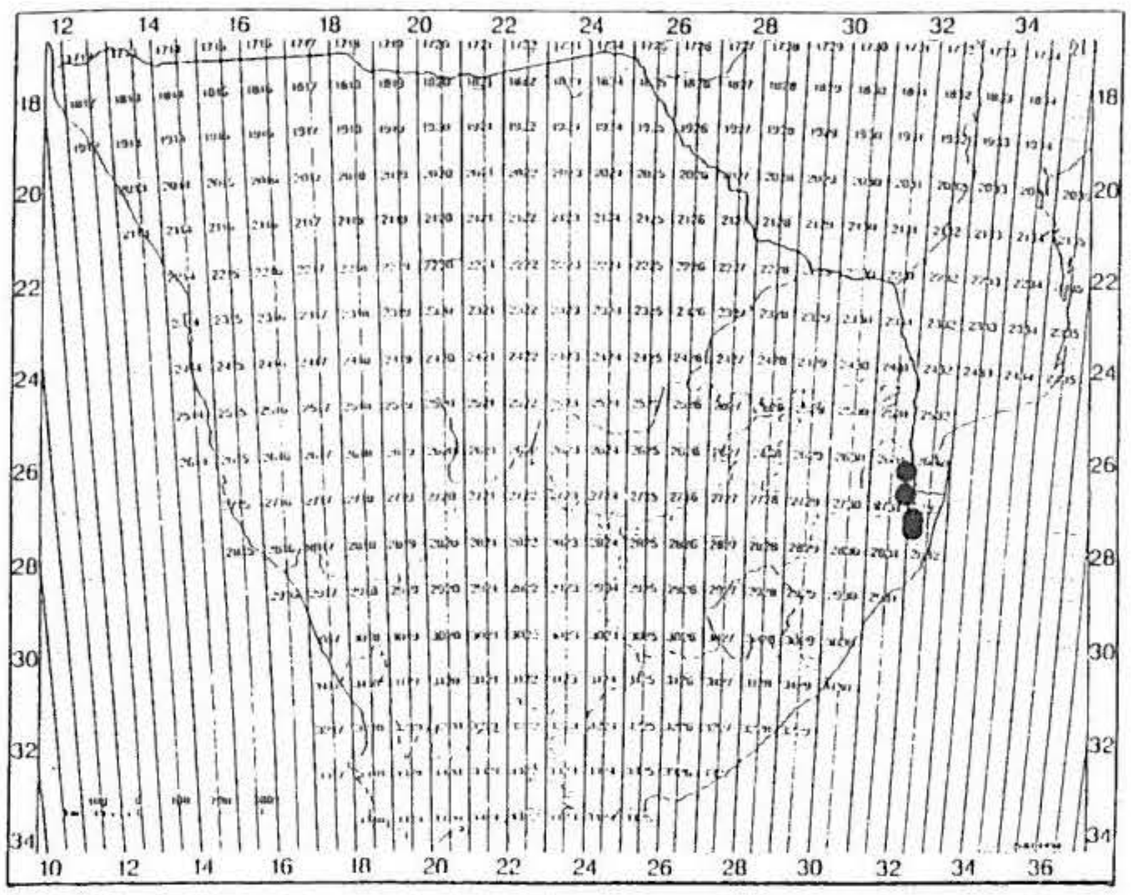


Figure 3 *Encephalartos senticosus*: known geographical distribution.

Vorster 2991 (FTG, K, LE, MO, PRE); Usuto Gorge (–DD), *Vorster 2989* (PRE).

—**2732**: Ingwavuma (–AA), *Giddy s.n* (FTG, K, LE, MO, PRE); Josini Dam (–AC), *Giddy s.n.* (FTG, K, LE, MO, PRE); *Holloway s.n.* (5.7.1963) (PRE, photo.); Mkuze River (–CA), *Giddy s.n.* (FTG, K, LE, MO, PRE).

Grid reference unknown: Utshaneni, *Giddy s.n.* (PRE).

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