

## NEW PLANT RECORDS FOR WEST PAKISTAN—1

By

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The present paper is the first of the series dealing with the author's studies of the Flora of West Pakistan. Most of the material on which this paper is based was collected or scrutinized by him within recent years and is lodged in the Stewart Herbarium, Gordon College, Rawalpindi. It deals with two plant species which have not been previously described in Hooker's Flora of British India or any other regional or local floras of this sub continent. These two plants belong to a very small genus *Emex*, with only two species, of the family *Polygonaceae*. One of the species is *Emex australis* and the other is *Emex spinosus*. The first one is native of Cape of Good Hope, South Africa and the second one comes from N. Africa and the Mediterranean coastal regions. It is a strange coincidence that both the species have been found growing not far from each other. *E. australis* was found growing in Risalpur near Nowshera in a field and *E. spinosus* was collected from a field between Akora Khattak and Khairabad, Peshawar District N. W. F. P. For the reference of Pakistani research workers generic description, key to the species, and detailed descriptions of the plants with their drawings have been given. Modern nomenclature has been used and the synonyms from various floristic works have also been cited.

## E M E X .

Neck., Elem. Bot. 2:214.1790, nom. conserv. Boiss.Fl. Orient. 4:1005. 1879; Post, Fl. Syr. Pal. Sin. 696. 1896; R. A. Graham in W. B. Turrill and E. M. Redhead, Fl. Trop. East Africa 2—4, 1958; T. G. Tutin in Tutin et al Fl. Eur. 1:89-1964; K. H. Rech. et H. S. Czeika in Rech. f., Fl. Iran. 56: 1968.

Monoecious annual herbs. Leaves oblong-cordate, petiolate, petioles with basal ochreae. Male flowers with 5-6 tepals, free nearly to the base, spreading, sub-equal. Stamens 4-6, borne in axillary racemose clusters. Female flowers urceolate, with an accrescent ovoid tube; tepals 6, arranged in two whorls, the inner 3, accrescent and erect; the outer 3 accrescent, conjoined, and forming very hard and reflexed tips.

Styles 3, terminally dilated and fimbriate; stigmas 3, penicillate. Fruit a triquetrous nut, enveloped in the hard and woody perianth. Seed erect, turbinate-trigonous.

A small genus with only 2 similar but easily distinguishable species, native in the old world. South Africa, Cape of Good Hope area; Kenya; Egypt; Mediterranean Coastal area; Iraq; Southern Iran, and now reported from West Pakistan.

Inner tepals of fruiting perianth rounded, with a terminal arista; fruiting perianth 11—12 mm. broad including spines, the faces perforated at maturity with usually 4 large pits.....1. *E. australis*

Inner tepals of fruiting perianth lanceolate-mucicous, without a terminal arista; fruiting perianth not or scarcely more than 4 mm. broad including the spines, deeply perforated with usually 6 small pits in 2 longitudinal rows above the rim at maturity ..... 2. *E. spinosus*.

1. *Emex australis* Steinh. Ann. Sc. Nat., Ser. 2,9: 195. 1838; Fl. Cap. 5 (1):481. 1912; R.A. Graham in W.B. Turrill and E.M. Redhead, Fl. Trop. East Africa 2-4. 1958. (Fig. 1, A—B).

An erect or diffuse, much branched, green, glabrous herb, about 35 cm. tall. Stem furrowed. Ochreae 5 mm. long, membranous, brown, readily tearing and falling away. Leave long petiolate, with a rounded or obtuse apex, base rounded, truncate or cordate, shortly pedunculate, clusters or in sometimes terminal spiciform racemes in the absence of the upper leaves. Male tepals green, in 2 subequal whorls, ovate-elliptic, 2 mm. long, scarcely exceeding 1 mm. in breadth with brown mid-rib and veins. Anthers ovate, brownish-orange; filiform, free. Female flowers sessile, all in axillary clusters. Inner three tepals erect, rounded or very broadly ovate, strongly veined with lateral veins bifurcating near the margin, the midrib excurrent as a short rigid arista. Outer 3 tepals forming at the tips very sharp, rigid, spreading spines, 4-5 mm. long, the faces perforated at maturity with usually 4 large pits. Fruiting perianth parallel sided very accrescent and hard, 8 mm. long, 11-12 mm. overall broad including spines.

Fl. Per. April—June.

Type: South Africa, Cape of Good Hope (Collector and location uncertain.)

**West Pakistan:** Risalpur Cantt. in a field near Sadar Bazar, c. 600m., Victor Loyal 6421 (RAW).

**Distribution:** A native of South Africa and known as Cape Spinach; now collected from West Pakistan. Introduced into Newzealand, Madagascar, Australia, and occasionally elsewhere as in Florida, California and Hawaii Islands. Essentially a plant of

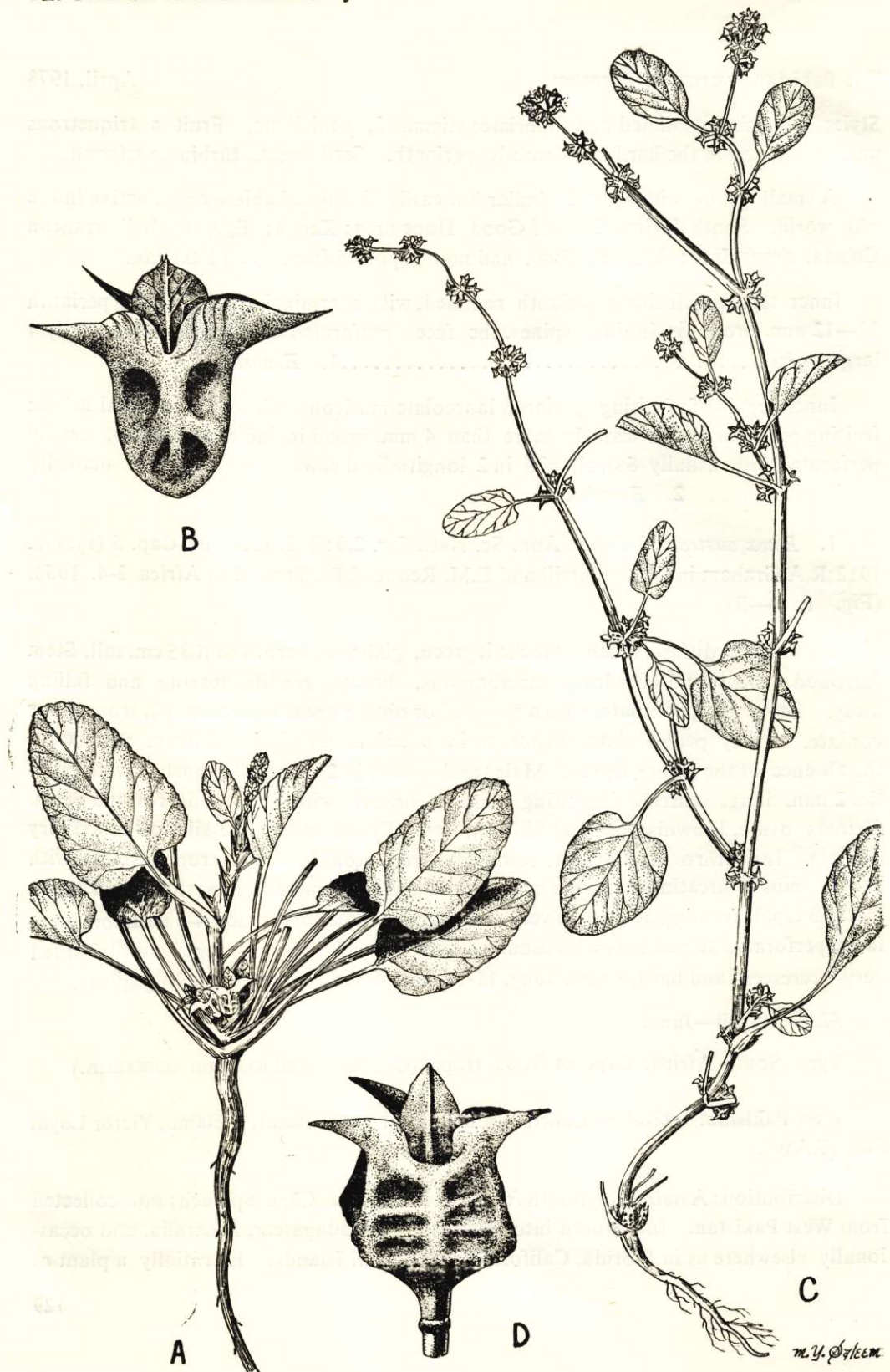


Fig. 1 *Emex australis* : A, habit x 2 (Victor Loyal 6421 RAW); B, fruit x 8. *Emex spinosus*: C, habit x 1; D, fruit x 14 (M.A. Siddiqi and Hassan Din 3417, RAW).

waste land, from 1200-1900 m. The leaves can be used as a vegetable and pot herb but the spiny perianth (tepals) causes painful damage to cattle.

2. *Emex spinosus*. (L) Campd., Monogr. Rum. 58. 1819; Boiss. Fl. Orient. 4: 1005 1879; Borg, Fl. Maltese Isl. 115. 1927; Tackholm, Std. Fl. Egypt.: 440. 1956; T. G. Tutin in Tutin et al Fl. Eur. 1:89. 1964; J. Cullen in Davis, Fl. Turk. 2:293. 1967; K.H. Rech. et H. S. Czeika in Rech. f., Fl. Iran. No. 56. 1968. (Fig. 1, C-D).

Syn.: *Rumex spinosus* Linn., Sp. Pl. U.377.1753; Fiori, Ic. Fl. Ital., f. 977. 1913; *Rumex glaber* Forsk, Fl.. Aeg. Arab. 75.1775.

An erect or diffuse, much branched glabrous herb. Stem decumbent 5-35 cm. tall. Leaves petiolate, ovate-oblong, with truncate or Subcordate bases, shortly decurrent to the petiole, when mature with basal lobes containing a broad sinus. Male flowers in racemose clusters or axillary racemes, which are sometimes leafless, Flowers are green in colour. Female flowers in axillary clusters, sessile. Very much like *E. australis* in its male flowers and vegetative characters, but markedly different in the fruiting perianth which is smaller, 5 mm. long, 4 mm broad overall including spines, narrowing upwards from a protruding rim shortly above the base. Inner tepals erect, lanceolate-muticous, without a terminal spiny arista. Outer tepals deeply perforated with usually 6 small pits arranged in 2 longitudinal rows above the rim. Spines 1.5-2 mm. long, somewhat arcuately curved at the base and remaining a little reflexed or becoming horizontal.

*Fl. Per*: April-May.

*Type*. Described from Crete (Hb. Linn. 464/36 Photo n. v.) Cult. Uppsala (Linn. Lecto.)

**West Pakistan**: Khairabad-Akora Khattak, a weed growing along field borders, in waste sandy places, not common, M. A. Siddiqi and Hassan Din 3417(RAW).

**Distribution**: Mediterranean coastal region, Iraq, S. Iran, N. W. Pakistan. Not common from 600-1200 m.

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