A TAXONOMIC STUDY OF ACACIA NILOTICA COMPLEX
IN W. PAKISTAN

S. I. ALI AND SHAMIM A. FARUQI

Department of Botany, University of Karachi, Karachi.

Abstract

Acacia nilotica complex is represented by five subspecies in W. Pakistan, including a new subspecies, A. nilotica ssp. hemispherica Ali and Faruqi, a new combination, A. nilotica ssp. cupressiformis (J.L. Stewart) Ali and Faruqi and a new record, A. nilotica ssp. subalata (Vatke) Brenan.

In almost all the works on plants of W. Pakistan (Baker 1878, Cooke 1903, Burkill 1909, Kashyap 1936, Khan et al. 1965, Hasanain & Rahman 1957, Stewart 1957, Khan 1958, Jafri 1966, Chaudhri & Chuttar 1966), Acacia arabica (Lam.) Willd. is the name adopted for the 'kikar' plant. Hill (1940) has discussed the nomenclature of this taxon in detail and has come to the conclusion that Acacia nilotica (Linn.) Delile is the correct specific name of this taxon. It is widely distributed in tropical and subtropical Africa and Asia as far eastwards as India (Brenan, 1959). In order to deal with different variants Hill (1940) has recognised five varieties under this species. Brenan (1957) has raised all these varieties to the subspecific level and has recognised two more subspecies, thus bringing the total number of subspecies to seven. Of these, subspecies indica (Benth.) Brenan, and subspecies adansonii (Guill. & Perr.) Brenan are reported from W. Pakistan.

Recent studies of the local material indicate that there are at least two more variants in W. Pakistan that have not been dealt with by Brenan. Evidence indicating the extent of hybridization, between some of the subspecies has been documented separately (Ali & Faruqi 1969). In the present paper an attempt has been made to deal with the taxonomy of different variants of this complex in order to facilitate their identification. In all five subspecies are recognised from W. Pakistan, including a new subspecies, Acacia nilotica ssp. hemispherica Ali & Faruqi, a new combination, A. nilotica ssp. cupressiformis (J. L. Stewart) Ali & Faruqi and a new record, A. nilotica ssp. subalata (Vatke) Brenan.

Our studies (Ali & Faruqi 1969) indicate that ssp. hemispherica has hybridized with ssp. indica, resulting in very widely distributed hybrid swarms. Subspecies hemispherica exists in pure form near Paradise Point, mostly along the seasonal river stream. Subspecies subalata, which combines the character of straight or
slightly crenate pod with the growth habit of ssp. *indica*, is confined to University Campus. We believe that at least in Pakistan, it has come into existence, as a result of hybridization between ssp. *hemispherica* and ssp. *indica*. Critical field studies in Africa are likely to yield interesting results in this connection. Subspecies *cupressiformis*, in view of its peculiar growth habit, may have originated in the north. At present it is quite widely distributed in W. Pakistan and some parts of India. Subspecies *adansonii* which is confined to Sind, may have come into existence as a result of hybridization of ssp. *indica* with ssp. *hemispherica* and *subalata*. Subspecies *indica* does not exist in pure form in W. Pakistan, but plants almost identical with it are widely distributed throughout the country. Probable causes of this pattern of distribution have been discussed separately by us (Ali & Faruqi 1969).

The following subdivisions of the area are recognised: Baluchistan, Sind, the Punjab, and N.W.F. region. The recommendations of Lanjouw and Staafleu (1964) have been followed regarding the abbreviated names of the herbaria cited with the following additions: Karachi University Herbarium (KUH) and Sind University Herbarium (SUH).


Ssp. *nilotica*

Type: Egypt, Herb. Linnaeus 1228/28 (L.).

Distribution: Senegal; French Sudan; N. Nigeria; Eastern Sudan and Nile land.

**Key to taxa**

1. Plant hemispherical in shape, (pod straight margined, falcate or slightly crenate)

   Plant not hemispherical in shape

2. Plant *cupressiformis* in appearance (pod generally narrowly and regularly constricted between the seeds)

   Plant not *cupressiformis* in appearance

3. Pod narrowly and regularly constricted between seeds

   Pod not narrowly and regularly constricted between seeds

4. Pod slightly constricted between seeds

   Margins of pod straight or slightly crenate

   1. *A. nilotica* ssp. *hemispherica*

   2. *A. nilotica* ssp. *cupressiformis*

   3. *A. nilotica* ssp. *indica*

   4. *A. nilotica* ssp. *adansonii*

   5. *A. nilotica* ssp. *subalata*
Fig. 1. *Acacia nilotica* ssp. *hemispherica* Ali & Faruqi, near Paradise Point, Karachi.

Fig. 2. Vertical sections of a plant of *Acacia nilotica* ssp. *hemispherica* Ali & Faruqi, near Paradise Point, Karachi.
Enumeration of subspecies

1. *Acacia nilotica* ssp. *hemispherica* Ali & Faruqi (Figs. 1 & 2) **ssp. nov.**

**Herbae paene sicut ‘ingloo’ in forma exteriori, truncus paene totaliter obscuratus; silica tenuis, paene erecta, interdum constricta defectu formationis seminis.**

**Holotype:** Plant semicircular in outline, upto 10 yards wide, c. 10 ft. tall, c. 2 miles ahead of Paradise Point, Karachi, 6.4.65, S. I. Ali (KUH), (Fig. 3).

**Representative Specimens:**

*Sindh:* c. 2 miles from Paradise Point, c. 17 miles from Karachi proper, 23.8.67, S. I. Ali & S. A. Faruqi (KUH), c. 2 miles from Paradise Point, c. 17 miles from Karachi proper, dry river edge, 23.8.67, S. I. Ali & S. A. Faruqi (KUH); c. 4 miles from Paradise Point, c. 19 miles from Karachi proper, nr. dry river bank, 23.8.67, S. I. Ali & S. A. Faruqi (KUH); c. 3 miles from Paradise Point, c. 18 miles from Karachi proper, dry river bank, 23.8.67, S. I. Ali & S. A. Faruqi (KUH); Karachi, Near Paradise Point, 26.3.66, S. I. Ali & S. A. Faruqi Ac 2, Ac 6 (KUH).

**Distribution:** So far as we know presently it is mostly confined to the edges of dried stream beds near Paradise Point, and adjoining areas, c. 15 miles from Karachi proper.

2. *Acacia nilotica* ssp. *cupressiformis* (J.L. Stewart) Ali & Faruqi, **Comb. et stat. nov.** (Figs. 4 & 5).

**Synonymy:**

1. *Acacia arabica* var. *cupressiformis* J. L. Stewart, **Pb. Pl. : 51.1869.**

**Representative Specimens:**

*Punjab:* Lyallpur, 19.4.67, S. A. Faruqi (KUH); Mandi Bahauddin, Dt. Gujrat, 7.10.67, flowers yellow, height 45 ft. M. S. Z. A. Cheema (KUH); Malloo Khokhar near Babe Dere, Gujrat, 18.4.67, S. A. Faruqi (KUH).

**Distribution:** W. Pakistan, Punjab, Sind; India, Deccan, Gujrat (Cooke 1903).


**Lectotype:** East India, Roxburgh (K).

**Synonymy:**

1. *Acacia arabica* (Lam.) Willd. var. *indica* Benth. in **Hook. Lond. J. Bot. 1:** 500. 1842.

Fig. 3. Holotype of *Acacia nilotica* ssp. *hemispherica* Ali & Faruqi.

Fig. 4. *A. nilotica* ssp. *cupressiformis* (J. L. Stewart) Ali & Faruqi (Mandi Bahauddin, Dist. Gujrat).

Fig. 5. *A. nilotica* ssp. *cupressiformis* (J. L. Stewart) Ali & Faruqi (Mandi Bahauddin, Dist. Gujrat).
Representative Specimens:

Sind: Hala forest, Ghotana-Salaro, D.F.O. Hyderabad, Sind 2 (K); Sukkur, riverine forest, 22.4.67, S. A. Faruqi (KUH); Jamshoro, Javed Anwar (SUH 16537); Ghulamullah, 4.4.66, S. A. Faruqi 472, 474, 477, 480 (KUH); Pattan, Thatta, 30.3.66, S. A. Faruqi 420, 425, 426, 433, 434, 435, 438, 439, 440 (KUH); Gharo, 30.3.66, S. A. Faruqi 450 (KUH).

Punjab: Lyallpur, 19.4.67, S. A. Faruqi (KUH); Bara Fort Road, 15.5.67, S. A. Faruqi (KUH); Jhelum 17.4.67, S. A. Faruqi (KUH); Gujrat, 18.4.67, roadside, S. A. Faruqi (KUH); Lahore, 6-9 miles on Multan Road, 20.4.67, S.A. Faruqi (KUH).

Distribution: W. Pakistan, Punjab, Sind; India, Punjab, U.P., Bengal; Central Province, Madras, Bombay; Tanganyika.


Synonymy:


Representative Specimens:


Distribution: W. Pakistan, Sind; India, Berar, Bombay; Arabia; Sudan; Somaliland; Senegal; Gambia; Ghana; Togoland; N. Nigeria; Portuguese Guinea.

Pakistan J. Botany

Holotype: Kenya, Teita District, Ndi, Hilderbrandt 2589 (B?).

Synonymy:

Representative Specimens:
Sind: Karachi University Campus, N.W. of Business Administration Building, pure Acacia formation 26.3.66, S. A. Faruqi 402, 404, 411, 412 (KUH); Karachi University Campus, N.W. of Business Administration Building, pure Acacia formation 19.2.66, S. A. Faruqi 102, 103, 105, 106, 107, 109, 110, 111, 112, 113 (KUH).

Distribution: W. Pakistan, Sind; Uganda, Kenya, Tanganyika, doubtfully also in Sudan (Brenan 1959).

Acknowledgments
Our grateful thanks are due to the authorities of the Royal Botanic Gardens, Kew, for herbarium and library facilities. We are also thankful to Mr. J. P. M. Brenan for discussing some aspects of this paper with us. It is a pleasure to express our indebtedness to Mr. Asghar Qureshi, Forest Botanist, Forest Research Institute, Peshawar, for arranging collection and observation facilities in the Acacia forests of West Pakistan. The help of Mr. M.S.Z.A. Cheema, who has supplied the photographs of ssp. cupressiformis is gratefully acknowledged. To Rev. Father Warkey, we are grateful for translating the description of the new taxon into Latin.

References


Chaudhri, I. I. and M. S. Chuttar, 1966. The Vegetation and Range Flora of Thar Desert. West Pakistan Forest Department.


