6. CYNOGLOSSUM *L.*

Erect herbs with ± scabrid leaves and blue or white flowers in raceme-like scorpioid cymes; corolla with a short tube and 5 spreading lobes. Fruit of four nutlets, each with short hooked spines.

In Arabia *Cynoglossum* is virtually restricted to the Yemen escarpment where three of the four species are endemic. The fourth, *C. lanceolatum*, is widely distributed in Asia and Africa.

1. Nutlets less than 2.5mm broad. Corolla less than 2mm diameter, usually white *C. lanceolatum*
   Nutlets more than 3mm broad. Corolla more than 2mm diameter, blue or at least with a blue throat 2
2. Nutlets with few spines on the upper surface. Young inflorescence ± enclosed by the imbricate bracts *C. sabirense*
   Nutlets densely covered with spines on the upper surface. Young inflorescence not bracteate 3
3. Corolla blue. Spines equally distributed over the nutlets *C. yemenense*
   Corolla white with a blue throat. Spines more numerous at the margin than at the centre of the nutlets *C. bottae*

1. Cynoglossum bottae *Defiers*

An erect, sparingly branched, scabrid biennial to 50cm. Leaves lanceolate to elliptic, up to 8cm long. Cymes mostly long and lax; corolla white with a blue throat, c 4mm broad. Fruit on recurved pedicels up to 10mm long, the nutlets 3–5mm wide, spines numerous but unevenly distributed forming a distinct marginal ring.

Frequent between 2000 and 3100m on the escarpment mountains from 'Utmah and Ḍawrān northwards; very rare on the high plateau but recorded from Nakhl al Ḥamrā in Ḥadā'. It grows in villages, on terrace walls and in disturbed rocky places. Outside Yemen it is only known from the Asir region of Saudi Arabia.

2. Cynoglossum lanceolatum *Forssk.*

An erect, scabrid annual or biennial to 60cm with numerous branches spreading at a wide angle and often forming an entwined mass. Leaves ovate or lanceolate, up to 8cm long. Cymes usually in pairs, dense-flowered; corolla white (rarely pale blue), very small, up to 2mm diameter. Fruit on recurved pedicels less than 3mm long, the nutlets 2–2.5mm wide, the spines numerous and evenly distributed.

The commonest *Cynoglossum* in Yemen; widely distributed on the escarpment (there is also an isolated record from a streamside in Nihm in the Mashriq) growing in disturbed rocky ground and on field borders from 1000 to 3000m though rare at low altitudes except in the central escarpment.

3. Cynoglossum sabirense (*R. Mill & A. G. Miller*) *J.R.I. Wood* comb. nov.

Paracynoglossum sabirense R. Mill & A.G. Miller in Notes Royal Bot. Gard. Edin. 41:481 (1984)

A decumbent, sparingly branched, scabrid biennial herb. Leaves lanceolate, up to 20cm long. Cymes lax; corolla sky-blue, c 5–6mm diameter. Fruit with nutlets 4–5mm broad and with few spines on the upper surface.

A little-known species with large leaves, distinctive young inflorescences which are enclosed by the numerous imbricate bracts, sky-blue flowers and few-spined nutlets.

A very rare endemic plant of shaded gullies between 2500 and 2900m on a few escarpment mountains where it is associated with *Arisaema bottae*: J. Ṣabir (Lavranos); J. Manār; in the gully below Shirnamah, J. Maswār.

4. Cynoglossum yemenense (*R. Mill & A.G. Miller*) *J.R.I. Wood* comb. nov.

Paracynoglossum yemenense R. Mill & A.G. Miller in Notes Royal Bot. Gard. Edin. 41:478 (1984)

Very similar in general appearance to *C. bottae* from which it differs in being more freely branched, in having deep blue flowers and in the nutlets which have the spines evenly distributed over their surface.

Quite frequent as a weed of fields and track sides in the high altitude southern mountains from J. Ṣabir north to Yarīm and Kusmah; elsewhere only known from Shibām and J. Nabī Shu'ayb. It grows from 2500 to 3300m and is endemic to Yemen.

7. ANCHUSA *L.*

1. Anchusa arvensis (*L.*) *Bieb.*

Lycopsis orientalis L.

Decumbent or ascending, bristly annual herb to 30cm, stem sparingly branched. Leaves sessile, oblanceolate, up to 6cm long, obscurely sinuate, green. Flowers pedicelled in lax, bracteate, branched, terminal, raceme-like cymes; calyx lobes narrowly lanceolate, c 10mm long; corolla bright blue. Nutlets wrinkled.

The Yemen plant is subspecies **orientalis** (*L.*) *Nordh.*

A local field weed occuring in scattered localities between 2000 and 3100m mainly on the wetter mountains of the escarpment but also on the high plateau where it usually grows in irrigated fields.

8. ALKANNA *Tausch*

1. Alkanna orientalis (*L.*) *Boiss.* Azawa'rān

An erect, much-branched, densely sticky glandular-hairy, yellow-green perennial to 50cm. Leaves sessile, lanceolate or oblong, up to 8cm long, entire. Flowers shortly pedicellate in very leafy raceme-like inflorescences; calyx lobes triangular, c 8mm long; corolla funnel-shaped, yellow. Nutlets pitted.

A characteristic and common plant of open stony roadsides, hills and plains on the high plateau between 2000 and 3000m; also common in similar areas in Khawlan Ash Sham. Otherwise known only from the Manākhah area.

Outside Yemen this species is abundant in the East Mediterranean basin.