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**On the identity of *Colubraria obscura* (Reeve, 1844)
(Gastropoda: Colubrariidae)**

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Abstract: The identity of *Colubraria obscura* (Reeve, 1844) is discussed by means of a comparison with *Colubraria testacea* (Mörch, 1877) and *Colubraria kathiewayana* Fittkau & Parth, 1993. Some notes on *Colubraria canariensis* Nordsieck & Talavera, 1979 are added.

Introduction: Specimens belonging to the genus *Colubraria* Schumacher, 1817 and originating from southern Brazil up to Florida (USA) are usually labelled *C. obscura* (Reeve, 1844). However, this is a misidentification and the specimens offered as *C. obscura* from these localities always belong to either *C. testacea* (Mörch, 1877) or *C. kathiewayana* Fittkau & Parth, 1993. Parth (1992) already mentioned the confusion between the first two species, yet the confusion has remained and has only become worse since the description of *C. kathiewayana*. This article therefore aims at pointing out the differences between these three species, hoping to bring an end to the confusion.

Discussion: It is in fact impossible to confuse *C. obscura* with the two other aforementioned members of the genus as its locality is completely different from the others' locality: *C. obscura* occurs on the coasts of eastern Africa (Somalia to South Africa; see remark), whereas both *C. kathiewayana* and *C. testacea* occur in the western Atlantic from Brazil up to Florida. Yet, the confusion relies on the superficial resemblance between *C. obscura* and *C. testacea* as they are alike in size and general appearance: both show a thick varix on the outer lip, above which a thick, second varix appears on the next whorl, the similar position of further varices, a sculpture of many fine axial rows of beads intersected by fine spiral threads, a strongly denticled inner lip, one or two columellar folds with parietal ridge at the adapical end of the columella and a similar colour pattern consisting of light to dark brown spaces, sometimes ornamented with darker coloured spots. However, they can easily be distinguished by looking at the columella: *C. obscura*'s columella is more elaborate, thicker and above all completely smooth, whereas *C. testacea*'s columella is very granulose and often shows extended granules (which creates a foldlike effect, however, one will only find these 'folds' to continue for a few millimetres). On closer examination, one can also find differences in the protoconch: *C. obscura* has got a narrow and pointed protoconch, whereas *C. testacea* has got a bulbous protoconch. However, the protoconch of both species is often decollate.

The confusion with *C. kathiewayana* relies on the fact that the latter is a less well-known species: many presume that there is only one western Atlantic colubrariid species, which they then falsely identify as *C. obscura* (see above). *C. kathiewayana* can easily be distinguished from the two other species subject to the present article as it is much smaller (less than half the size of both *C. obscura* and *C. testacea*), only shows small denticles on the inner lip, has only got 11 varices (as opposed to 14-15 in the two other species) and has got a much finer sculpture: although it consists of many fine axial rows of small beads intersected by fine spiral threads, these are much closer to each other. The only characteristics it shares with *C. obscura* are the position of the two final varices and the superficially smooth columella. Yet, one will notice very fine granules on *C. kathiewayana*'s columella, whereas *C. obscura*'s is completely smooth. A final characteristic that will exclude *C. kathiewayana* from confusion with both *C. obscura* and *C. testacea* is the protoconch: *C. kathiewayana* has got a conical pointed multispiral protoconch.

A last taxon which is often considered a subspecies of *C. obscura* is *C. canariensis* Nordsieck & Talavera, 1979 from western Africa (Canary Islands, Senegal, Angola). The latter has been linked to *C. obscura* (misidentification for *C. testacea*, see above) and *C. intertextus* (Helbling, 1779) (= *C. reticulata* Blainville, 1826). However, it is often treated as a separate species as it is more elongate, its axial ribs are much less

developed than in *C. testacea*, which gives the shell a less intersected surface and its darker colour. Yet, some recently obtained specimens from the Cape Verde Archipelago show this less developed axial structure, whereas others show the typical sculpture present in *C. obscura*. This might confirm Beu & Maxwell (1987), who state that *C. canariensis* is possibly a subspecies based on eastern Atlantic specimens of *C. obscura*. However, they also confuse *C. obscura* and *C. testacea*. However, we agree that it is most appropriate to place the specimens from the continental shelf (Canary Islands, Senegal, Angola) on the subspecific level, as *C. obscura canariensis*, geographically separated from the Cape Verde Archipelago and the West Atlantic shelf. We regard the populations from the Canary Islands "peripheral isolates" in the sense as defined by Mayr (1970: 285-286): living at the border of the species range, the specimens have more room for variability. Yet, we are aware that more material and further (anatomical) study is needed to reveal the true identity of *C. canariensis*.

Remark: The distribution for *C. obscura* given in the present article is limited to eastern Africa and the Cape Verde Archipelago, yet it is possible that the actual range is much bigger: *C. obscura* might even be an Indo-Pacific species as collectors have passed on locality data as far as Thailand and even the Hawaiian Islands. This would also confirm Reeve's original data (East Indies). More research is needed to reveal *C. obscura*'s actual range.

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Summarizing translation into Dutch/ Samenvattende Nederlandse vertaling

Colubraria-schelpen van Brazilië tot Florida worden gewoonlijk als *Colubraria obscura* (Reeve, 1844) gedetermineerd. Dit is echter een foute identificatie en ze behoren altijd tot *Colubraria testacea* (Mörch, 1877) of *Colubraria kathiewayana* Fittkau & Parth, 1993.

Het is echter zeer eenvoudig *C. obscura* van de twee laatstgenoemden te onderscheiden, daar deze soort bij Oost-Afrika voorkomt (mogelijk een veel groter verspreidingsgebied, maar verder onderzoek nodig), terwijl *C. testacea* en *C. kathiewayana* van Brazilië tot Florida voorkomen. De verwarring berust dus louter op de oppervlakkige gelijkens tussen *C. obscura* en *C. testacea*. Hoewel ze een aantal kenmerken met elkaar delen, kunnen deze soorten eenvoudig onderscheiden worden a.h.v. de columella: bij *C. obscura* is deze dikker, uitgebreider en volledig glad, terwijl ze bij *C. testacea* talrijke korrels en plooiachtige korrelingen vertoont. Bovendien heeft *C. obscura* een slanke, gepunte protoconch terwijl *C. testacea* een bolle protoconch heeft.

De verwarring met *C. kathiewayana* is terug te voeren tot het weinig bekend zijn van deze soort: velen veronderstellen dat er slechts een *Colubraria*-soort in de West-Atlantische Oceaan voorkomt, die dan foutief wordt geïdentificeerd als *C. obscura*. *C. kathiewayana* kan echter eenvoudig van de twee andere hier vermelde soorten onderscheiden worden door zijn grootte (niet half zo groot als de andere twee), de veel fijnere tanden aan de binnenzijde van de lip, de veel fijnere sculptuur en de multispirale conische protoconch.

Een laatste taxon dat vaak als een ondersoort van *C. obscura* beschouwd wordt is *C. canariensis* Nordsieck & Talavera, 1979 van West-Afrika. Omwille van de langgerektere vorm, de minder ontwikkelde axiale ribben en de donkerdere kleur wordt ze ook vaak als een aparte soort behandeld. Recent verworven specimens van de Kaapverdische Eilanden vertonen dezelfde minder ontwikkelde sculptuur terwijl andere exemplaren de typische *C. obscura*-sculptuur vertonen. Daarom plaatsen wij de exemplaren van de continentale plaat op subspecies niveau als *C. obscura canariensis*, geografisch gescheiden van de Kaapverdische Eilanden.

Plate:

1-5: *Colubraria obscura* (Reeve, 1844).

1-2: Mozambique. Dorsal and ventral view.

3: Somalia. Ventral view of juvenile specimen.

4-5: Cape Verde Islands. Dorsal and ventral view.

6-8: *Colubraria testacea* (Mörch, 1877).

6-7: Brazil. Dorsal and ventral view.

8: Ventral view of juvenile specimen.

9-11: *Colubraria kathiewayana* Fittkau & Parth, 1993.

9-10: Brazil. Dorsal and ventral view.

11: Brazil. Ventral view of juvenile specimen.

12-13: *Colubraria obscura canariensis* Nordsieck & Talavera, 1979.

Canary Islands. Dorsal and ventral view.

(All pictured shells in the authors' collection; digital photographs by the authors)

