

THE ARABIC SAWSCALED VIPER, *ECHIS COLORATUS*.

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AREA OF DISTRIBUTION AND BIOTOPE

Echis coloratus lives in the Lebanon, Israel, Jordan, Saudi Arabia, Yemen, the United Arab Emirates, the peninsula of the Sinai and eastern Egypt. During two trips to Israel I was able to study *Echis coloratus* in its natural surroundings. By driving on asphalt roads, which were still warm in the evening, we discovered that *Echis coloratus* was frequent in Israel, though it was sad to find most snakes run over by cars.

Well known regions for *Echis coloratus* are the environs of Jericho and the oasis of En Gedi. *Echis coloratus* is not tied to one specific biotope. We found for example a grey, rather unattractive specimen under big flat stones on a rocky slope near Jericho. A more distinctly marked specimen was found in the evening in a sandy area which was dotted with bramble bushes. In the same biotope we also discovered *Cerastes cerastes gasparetti* and *Spalerosophis cliffordi*. *Echis coloratus* seems to prefer hard soil with rocks, as we found this snake most often in such biotopes.

Especially flagstones were used often as shelter because these keep cool even during the greatest heat. Even the egg-laying *Echis coloratus* chooses these shelters. The most beautiful individuals were found near Eilat on granite and in the Sinai.



Foto 1. Biotoop van/Habitat of *Echis coloratus*,
Dimona, Israel. Foto: Michael Lehmann.



Foto 2. *Echis coloratus*, volwassen vrouwtje/adult
femate. Foto: Michael Lehmann.

DESCRIPTION

Like all other *Echis* species *Echis coloratus* has a slender body. Its arrow shaped head is clearly divided from its slender neck. The number of keeled scales in the middle of the body is 27-37. The colour varies considerably. It depends on the environment where the animals live. One can find ash-grey, brown, pink and red colour varieties. My breeding pair was caught in the Sinai. Both animals are basically pink. On the back there are large, oval blue-grey spots each with a white dot in the centre. Over the entire length there is a faint pink line. The flanks are spotted grey-blue. The top of the head is decorated with blue-grey markings. The belly has the colour of porcelain.

BEHAVIOUR

Echis coloratus is a "side-winder". If *Echis coloratus* wishes to deter an enemy, it rubs its erected side scales against each other. The body is then bent like an "S" and moved backwards and forwards. When excitement increases, these movements increase also. The noise produced in this way reminds one of the rattle of rattle snakes. If *Echis coloratus* produces this sound, one should be very careful, for this species can rush forward as quickly as lightning. *Echis coloratus* does not hide under the sand.

THE POISON

The poison of *Echis*-species belongs to the strongest of all Viperids. The yellow poison of *Echis coloratus* affects blood and blood vessels. Besides serum, medicines that improve the circulation of the blood, and fibrinogen are necessary. Sometimes blood transfusion is inevitable. A very

active, polyvalent serum for *Echis coloratus* is produced in the Beilinson hospital in Israel. Sadly it is not available here.

THE TERRARIUM

I have kept *Echis coloratus* for several years. The animals are kept in a terrarium of 170x50x80 cm (lwxh). The bottom is covered with 5-8 cm of sand. Some big, flat stones, a climbing tree and dried grass are present. The back and sides of the terrarium are covered with rocks, which give the animals the opportunity to climb nearer to the heating (reflector lamps of 75 Watt). The snakes regularly use a small water tank to drink. By day the temperature is 28-32⁰C from March till November, at night this drops to 18-23⁰C. The terrarium is lit for 8-14 hours a day, according to the season. My animals hibernate from December till February. During this period they get 4-5 hours light a day. The maximum temperature is 24⁰C. If the light is out, the temperature is 16-18⁰C. The relative humidity is 50-60%.

My snakes eat without any problem both dead and live mice. Every fortnight I offer 1 or 2 mice, depending on the size of the snake. Small mice are grasped very quickly and kept in the mouth until they are dead. Larger mice which can defend themselves are let loose after poison has been injected. They die rapidly and are eaten head first. Adult snakes slough 2-3 times each year. By day my animals usually lie motionless under the heat lamps. In this way the snakes expose themselves to temperatures of 34-35⁰C, though they have cooler places at their disposal. On the top of the climbing tree the temperature even rises to 39⁰C. However the animals do not stay for longer than 2 hours in this spot.

Echis coloratus is especially active at twilight

and during the night. Then they crawl constantly through the terrarium. Aggressive behaviour of fresh caught *Echis coloratus* disappears after some acclimatising period. If one opens the terrarium by day the snakes flee to hiding places. At night however they will rattle their scales and try to defend themselves by biting.

BREEDING

In January 1980 a complete breeding group of *Echis coloratus* had died during hibernation at temperatures of 12-15°C, but happily I obtained a beautiful, large, adult female from the University of Tel Aviv. The snake measured 75-80 cm. In January 1983 I received a beautifully marked male of the same size. The female had been in hibernation since the beginning of December 1982 in the terrarium which has been described above. I put the male, which already had been kept in captivity for a longer time at the University of Israel, in the female's terrarium. In February I increased the lighting period to 6-7 hours a day. Through that the terrarium became 26-27°C. Mice, which were offered now, were accepted by both animals. On 1 April 1983 the male began to follow the female with little twitches of the head. Mating occurred on 10 April. The last mouse before egg-laying was eaten by the female on 7 May. From 15 June to 18 June the female laid with the utmost exertion 14 eggs. Each egg was soiled with blood. It was very clearly obvious that one egg was still in the body. After 8 weeks I removed it from the body by means of massage. It was not fertilized, and had hardened. The abnormally long time (3 days) it took to lay the eggs and the bleeding which occurred are in my opinion due to the great number of eggs. According to Mendelssohn (1965) *Echis coloratus* did not lay more than 10 eggs at the Univer-

sity of Tel Aviv.

I put the 14 eggs into a Jäger incubator. As incubation substrate I used vermiculite. The temperature was 30°C, the relative humidity 95%. Between 21 June and 6 August 1983 I opened 8 shrunk and discoloured eggs. Four of them were infertile. The other 4 contained dead embryos, measuring:

21 June: 5.7 cm

2 August: 11.5 cm

6 August: 17 and 18.3 cm

On 3 August 3 young snakes broke through their shells. One of them tried to leave the egg. It died, coiled with his mouth open. The 3 other eggs were broken open by young snakes on 5 August. It took them 10-50 hours to leave their eggs. All young snakes were 18-19 cm and looked healthy and strong.

RAISING

I kept one couple from this breeding. The other snakes went to other snake keepers. Because neither of the two young snakes deliberately took crickets or baby mice, I decided to force-feed them with pieces of beef heart. After two months the male began to eat young mice on its own. The female did not eat voluntarily until July 1984. Although she was force-fed regularly, the female was smaller and less thick than the male. Both animals were fed during the winter 1984/1985 and kept at temperatures of 28°C (at day) and 16-18°C (at night).

F₂ GENERATION

On 10 April 1985 I was surprised to find these animals mating. Until then I did not think it was possible because the male which was 50-55 cm long



Foto 3. *Echis coloratus*, in copula. Foto: Michael Lehmann.



Foto 4. *Echis coloratus*, jong vrouwtje geboren in 1983/young female born in 1983. Foto: M. Lehmann.

was 10 cm longer than the slender female. Between then and May several matings took place. In the beginning of June the female ate for the last time a mouse. On 3 July the eggs were laid in a small plastic tank which was filled with wood-shavings. Five clustered eggs were laid in a somewhat moist area of the tank. One egg broke as I transferred it to an incubator.

The remaining four eggs weighed together 30 g. The average size was 3.5x1.7 cm. The incubation occurred in the same way as described above. The temperature however was only 28°C. During the first fortnight I had to remove one mouldy egg. It contained a dead embryo. The hatching dates and the sizes and weights of the young snakes are as follows:

Hatching	Length	Weight	Sex
9 September 1985	19 cm	4.4 g	female
11 September 1985	19.5 cm	4.2 g	male
14 September 1985	20.3 cm	6 g	female

The first sloughing occurred 10 days after hatching. After two months of force-feeding the snakes ate baby mice of their own accord.

POSTSCRIPT

All keepers of *Echis* species have to realize that the species name *Echis 'carinatus' pyramidum*, which is frequently offered in pet shops, is often in reality the Pakistan species *Echis carinatus sochureki*. If bitten it is important to know the exact place of origin (Mebs & Kornalik, 1981). Only by giving the right place of origin of wild caught animals, is it possible to give the right serum. For example, the serum made by Behring hardly works on bites of *Echis carinatus sochureki*. For bites of *Echis carinatus sochureki* serum of

Haffkin Institute, Bombay, has to be used. Because treatment should be given very quickly after being bitten, every *Echis* keeper should have the right serum at home or in a nearby hospital. Only in this way it is possible to avoid incorrect serum treatment.

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