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Description of a new species of genus *Dolichophis* Gitstel from the upper Mesopotamian Plain-Iraq (Reptilia–Serpentes–Colubridae)

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Abstract

The Whip snakes of the genus *Dolechophis* in Iraq are distributed in various habitats. Two species of *jagularis* species group was known in Iraq. Depending on great variation in color pattern and ventral scale count, a new form discovered, because of its distribution along the upper Mesopotamia we named it *Dolichophis mesopotamicus* sp. nov. The study supported by figures and distribution map.

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Introduction

Previously, Utiger and Schatti (2004) Schatti and Monsch (2004) and Nagy *et al.* (2004) proposed *Dolicophis* Gistel,1868 for the eastern Mediterranean taxa. In Iraq two species was known to be found; *Dolicophis jugularis* (Linnaeus,1758) and *D. schmiditi* (Nikolsky,1909), as well as *D. caspica* (Gmelin) and subspecies *erythrogaster* from Iran close to our study area (Venchi and Sindaco, 2006 Terrintev and Chernove, 1949 Latifi, 1991 Rastegar-Pouyani *et al.*, 2008). Amr and Disi (2011) assigned presence of both *D. Jugularis* and *D. schmiditi* in Jordan. Boulenger (1920) named this snake *Zamenis gemonensis* and giving its distribution from Baghdad to Basrah and he said this snake changes color to uniform black after reaching the length of four feet. Khalaf (1959) and Corkill (1932) referring Iraqi collection to *C. jugularis asianus*. Leviton *et al.* (1992) mentioned that *D. schmidti* occurs in higher elevation of Iraqi Kurdistan. Zinner (1972) assigned to *Coluber caspius schmidtii* for central Iraq and Syria, with *C. jugularis jugularis*, but as we know

distribution of *C. jugularis jugularis* in Africa. Most of this confusion occurs because of some similarity in allopatric populations.

This polymorphic species group (*jugularis* complex) has a wide range of distribution and scale count variation and they also found from different ecological zones, desert and semi deserts, river side, and mountain slope. The aim of this work is to verify available data, to provide taxonomic key for Iraqi specimens and describing a new taxon belongs to genus *Dolichophis*.

Results and discussion

Dolichophis mesopotamicus sp.nov.

Holotype: Adult male (Fig.1) collected from Tarmyah north of Baghdad, museum No.IMN.(435). Paratypes 4 specimens (Fig.2,3, Table 1) First one from Zalm, west Halabjah No. IMN. (349), the second from Kalar south west of Halabjah No. IMN.(348), the third one from Baaquba Dialah Province No. IMN. (202), and one from Baghdad No. IMN. (225).

Table 1. Variation in scale counts in paratypes of *D. mesopotamicus* sp. nov.

Place of collection	Scale rows	ventrals	subcaudals	Total length in centimeters
Halabjah No.349,IMN.	18	207	104	119
Kalar No. 348,IMN	19	201	102	127
Baghdad No. 225,IMN.	20	202	148	166
Baaquba No. 202,IMN.	19	200	116	122

Measurements of holotype: Total length= 117cm. Tail length=34cm.

Description of holotype: Relatively small head slightly wider than neck. Rostrum round, scarcely visible above. Internasals suture equal to suture between prefrontals. Pareitals and two large temporal scales bordering two postoculars 2 preoculars in one side and 3 in other side. 9 upper labials, first and second touching nasals, fourth and fifth touching eye. 10

lower labials. Nostril between two nasals and internasals. Loreals longer than deep. Anterior pair of chin shields as long as posteriors but wider. Dorsal scales smooth, with two pits in 19 longitudinal rows at midbody. 207 ventral plates ,and 106 subcaudals. Anal plate divided.

Color pattern in life: Shiny uniform black dorsal side. Lateral lighter than dorsal, with dark polygonal strips. Posterior of the head with brown blotch region. Three

spots on the neck, each of the black dorsal scales have median intense thin red line, more prominent in anterior dorsal scales. Venter with black spots while anterior Venter and throat pink. The round eyes have half orange and half orange brown.



Fig. 1. Male *Dolichophis mesopotamicus*. sp. nov, holotype collected from Tarmeah north of Baghdad a- Alive. b- Lateral of the head and body in preservative. c- Dorsal of the head and body in preservative.

Color in preservative: Bluish brown with irregular brown blotch, and the scale with light median line.

Habitat and distribution: Bushes and vegetation around the rivers, manmade lakes and ponds for fish cultures. It is sympatric with *Dolichophis jugularis asiana* in most of the known distribution for Iraq as in the map Fig.3.

Behavior: These diurnal snakes have interesting behavior in their capability of moving the eyes anterior and posterior, up and down.

Paratypes are the same as type in preservatives with little scale count variation but it does not exceed 200-207 ventral plates in our collection (table No. 1),(Fig. 2).



Fig. 2. Paratype of *D. mesopotamicus* male , from Kalar south of Halabjah.

Gocmen *et al.* (2013) gave the same data (205 ventrals) and black scale with red line for Turkish Anatolian *Dolichophis* with exception of head color and they said it is hybrid between *D. j. asianus* and *D. schmidti*. We believe it is also the same for *D. mesopotamicus* sp.nov. Only the head color varied because of geographical color variation.

Key for separation of *Dolichophis mesopotamicus* sp. nov. from the two known species of the genus *Dolichophis* in Iraq.

1-Dorsal color in life shine black, 200-220 ventrales, more than 100 subcaudals.....

-Dorsal color reddish brown, 195-200 ventrals, 80-100 subcaudal.....*Dolichophis schmidti* (Nikolski,1909).

2- Dorsal color of the head and body uniform black in preservative (alcohol) as in life. Ventral reddish orange (or uniform silver black). no ventral spots, scale smooth. Mostly ventral scale more than 210.....*Dolicophis jugularis* (Linnaeus, 1758).

-Mid dorsal color of the body black, lateral lighter with polygonal dark strips. Head is brown. Posterior of the head with brown blotch in life; scales are black with thin reddish central line. In preservative: blue brown with irregular brown blotch, each of dorsal scale with light line, ventrals less than 210 scales
....*Dolichophis mesopotamicus* sp. nov.

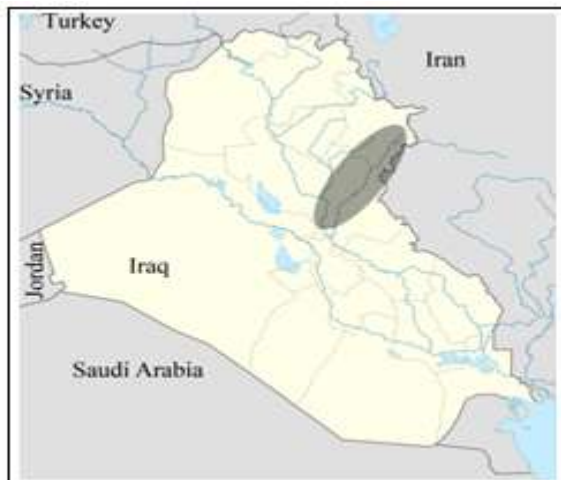


Fig. 3. Map of Iraq showing distribution of *Dolichophis mesopotamicus* sp. nov. at north eastern parts (dark ellipsoid).

There are huge ranges of ventral scale count variation giving by different authors for *jugularis* species group. Corkill, 1932 giving ventral scale for Iraqi *C. jugularis* 165-230. Amr and Disi, 2011 giving ventral scales, 212-228 for Jordanian *D. jagularis* and 190-212 for *D. schmidtii*. Leviton *et al.*, 1992 giving range of 189-220 ventral plate for *D. jugularis* and 185-207 for *D. schmidtii* for Mediterranean specimens. Latifi, 1991 giving for Iranian *Jugularis* complex including *jugularis*, *caspius*, *erythrogaster*, and *schmidtii* all together 192- 210 ventral scales. Zinner, 1972 assigned such pattern of dorsal and ventral scale color for *Coluber caspius schmidtii* and *C. jugularis jugularis*, the second one distributed in Egypt and Africa. In Iraq the polymorphic black headed and uniform black dorsal scale without strip of *D. jugularis asianus* has two ventral color patterns, one with red ventral and the second with uniform silver black, distributed in all Iraqi land from north to extreme south, it is sympatric with *D. mesopotamicus* sp. nov., in some habitat. The fire snake *D.jugularis*

erythrogaster population north of Iran may be also extend our area. The *D. jugularis* of Anatolia, giving by Gocmen *et al.*, 2013 most likely to be the same as *D. mesopotamicus* and they said it is hybrid between *D. jugularis* and *D. schmidtii*, all of the previous authors were suffering and confusing in identification of *jugularis* species group. So as it is clear in the above key we can easily separate the Iraqi species group *D. jugularis* into three different species depending on color pattern and ventral scales. It is necessary, for good results, to study the snake alive and in preservative.

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