First Record Of The Fish Species *Aphanius Vladykovi* (Coad, 1988) Of The Family Cyprinodontidae In Fresh Waters Of Al-Bireh Dam , Wadi Al-Ayoun , Hama , Syria

التسجيل الأول للنوع السمكي *Aphanius vladykovi* (Coad,1988) من فصيلة Cyprinodontidae في المياه العذبة سد البيرة- وادي العيون- حماة- سورية

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Abstract

The research was conducted during October 2022 to May 2023 with the aim of studying the fish Biodiversity in the Al-Bireh Dam- Hama- Syria. Fish samples were collected using Gills nets and Hooks. The results showed the presence of the species *Aphanius vladykovi*, which is recorded for the first time in the Syrian fresh waters. This species is characterized by the upper mouth, the eye in the upper side of the head, and the presence of smooth teeth on the jaws. The end of the lateral line is dark black, there are no spines, and rays of fins are soft. The ventral area has a light color, while the dorsal area is dark. Light spots are spread on the body of the fish, and the scales are firmly attached to the skin.

Keywords: Al-Bireh dam; Biodiversity; *Aphanius vladykovi*; Syrian fresh waters; Fish Freshwater.

المستخلص:

أجري البحث خلال الفترة الممتدة من تشرين٢٠٢٢م إلى أيار ٢٠٢٣م بهدف دراسة الأنواع السمكية الموجودة في سد البيرة, جُمعت العينات السمكية باستخدام الشباك الغلصمية والصنارة. أظهرت النتائج وجود النوع *Aphanius vladykovi* وهو يسجل لأول مرة في المياه العذبة السورية .يتميز هذا النوع بالفم العلوي ,العين من الناحية العلوية من الرأس و بوجود أسنان ناعمة على الفكين, نهاية الخط الجانبي بلون أسود غامق, لاتوجد أشواك وأشعة الزعانف لينة, المنطقة البطنية بلون فاتح أما الظهرية بلون غامق, تنتشر بقع باللون الفاتح على جسم السمكة , الحراشف مثبتة بالجلد بقوة.

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Introduction

International Associations and organizations (UNEP, Convention on Biodiversity of the Rio Earth Summit, 1992) emphasized the necessity of studying biodiversity in general and fish diversity in particular, the conservation of fish richness, and the proper management and regulation of fishing (Galiya, 2003). The first study of Syrian freshwater fish was conducted by the Austrian scientist Heckel (1843), who recorded 36 species of 4 genera of fish.

In 1962, a comprehensive study on freshwater fish in Syria was published mentioning 86 species (Beckman, 1962). After that, sporadic studies of the German mission (GTZ) in 1980 that included fish and other aquatic life in Lake Assad (Euphrates River) showed the presence of 21 species. Then, Coad (1991) recorded a list of 66 species of fish in the Tigris and Euphrates rivers in the Syrian territory. The series of working documents of the Syrian-German project for the development of fisheries in the Syrian fresh waters (IFAP, 1999) showed the presence of 28 endemic fish species in addition to introduced species Euphrates River (National Biodiversity Study, 1998).

A study on fish species dispersed in freshwater bodies in the coastal Syrian zone was carried out by Galiya and Fadel (2004) in which nine fish species belonging to seven families were recorded. Galiya *et a*l. (2015) recorded the presence of nine fish species in the waters of the 16 Tishreen Dam Lake. There are 95 species of freshwater fish belonging to 40 genera of 15 families; three species of them belong to the genus *Aphanius* and the family Cyprinodontidae (National Biodiversity Study, 2016). In a qualitative and quantitative study of fish fauna in the Drikish Dam Lake – (Tartous, Syria), Hassan, *et al*. (2021) recorded five fish species.

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Welson (2016) reported the presence of 9 genera and 131 species of the family Cyprinodontidae in global freshwater. One genus and 11 species are widespread in Iran, including *A. vladykovi* (Arash, 2020), while the National Biodiversity Study (2016) reported the existence of one genus, *Aphanius*, and three species in Syria which are *A. dispar*, *A. mento*, and *A. sophia*. Cilidir (2001) also recorded the presence of species *A. mento* in Syrian freshwater.

Materials and methods

Description of the study area:

Al-Bireh Dam is located Wadi El-Oyoun region - Hama Governorate - Syria at the eastern foot of Mount Nabi Matta at an altitude of 1100 meters above sea level. The length of the dam is 150 meters and its depth is 15 meters with a storage capacity of 100,000 cubic meters fed by mountain springs, river, streams, rain and snow. The region is characterized by waters temperatures range between -2° C in the winter and 27 °C in the summer (Fig. 1).

Figure 1: A general view of study area Al-Bireh Dam in 2/5/2023

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Methods:

Fish individuals were caught using local fishing methods. After measuring the pH and water temperature, specimen pictured and morphometric measurements were taken and species were identified by using taxonomic keys (Berg 1949, Beckman 1962, Pravdin 1966, Vesilave 1977, Sokolov 1989, Mark 2013, Nelson 2016).The specimens were kept in formaldehyde 7% in the postgraduate studies Laboratory _ Faculty of Science _ Tishreen University.

Results

During this research, the species *Aphanius vladykovi*, the family Cyprinodontidae, was collected. The total length of the body is 5.4 cm with a maximum height of 1.9 cm. The number of lateral line scales is 14 (Table 1), no hard spines in the fins, and there are soft teeth on the jaws. Upper mouth and side end are dark black. The edge of the glamourous cap is orange, these qualities agree with what is reported in Arash *et al* (2020). The male is distinguished by the dark color of the dorsal fin and the light color of the Anal fin (fig. 2).

Discussion

The species *Aphanius vladykovi*, agree with what is reported in Arash *et al* (2020). This species lives in low temperatures; water temperature of Al-Bireh Dam which was 11.2 ° C in 24/4/2023 with pH 10.16, and these figures are similar to those mentioned by research carried out by Frank (2015) in Iran on the same species *A. vladykovi* . This species is widespread in Europe, North Africa and Asia. It is similar to *Aphanius sophiae* but it is characterized by having more lateral line scales, the dorsal fin color in the male is darker and the ventral fin is lighter, females lack a particular large model spot at the base of the caudal fin found in the species *Aphanius sophiae* (Frank, 2015:Jose,2004)

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Figure 2: General view of an individual of *Aphanius vladykovi* caught from Al-Bireh Dam in 2/5/202

Table 1: Morphometric measurements of *A. vladykovi* caught from Al-Bireh dam and comparison with reference data

	Arash *et al.,2020*	**Ibrahim *et al.,2006***	**Arash *et al.,2020***	**Curret research**	*Tl%*
Species	*A.sophia*	*A.dispar*	*A.vladykovi*	*A.vladykovi*	
Dorsal fin rays	11-15	11	11-14	١١	
Pectoral fin rays	14-19	18	10-17	١٠	
Anal fin rays	10-11	12	11-13	١١	
L.L	25-31	24	16-47	١٤	
Number of Gill-Rakers	11	10	10	10	
Total length/T.L				5.4	100
Standard length/S.L				4.8	88
Head length/H.L				1.3	24
Body depth/B.D				1.9	35
Snout length				0.2	3.7

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Eye Dimeter/E.D	0.1	1.85
Dorsal Fin Base Length	0.5	9.25
Pectoral Base Fin Length	0.4	7.40
High of Dorsal Fin	0.8	14.81
High of Anal Fin	0.6	11.11
High of pectoral Fin	1	18.51
Anal Distance	4.4	81.48

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