

Alburnoides coskuncelebii,
a new species from the stream Büyük Melen
in north western Anatolia
(Teleostei: Leuciscidae)

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Alburnoides coskuncelebii, new species, is described from the Büyük Melen River in the Southern Black Sea basin. It is distinguished from other species of *Alburnoides* in the Southern Black Sea basin by having the ventral keel covered with 2-5 scales between the posterior pelvic-fin base and the anus, eye diameter slightly smaller than snout length and interorbital distance, 47-54 total lateral-line scales, 9-11 scale rows between dorsal-fin origin and lateral line, 4-5 scale rows between anal-fin origin and lateral line, 13½-15½ branched anal-fin rays, 40-42 total vertebrae, 13-15 predorsal vertebrae, and 6-9 gill rakers. *Alburnoides coskuncelebii* is also distinguished from its closest relative, *A. tzanevi*, by having nine diagnostic nucleotide substitutions in the mitochondrial DNA 16S rRNA gene.

Introduction

The spirilins of the genus *Alburnoides* are widespread from France to Central Asia (Kottelat & Freyhof, 2007). Populations of the Turkish Black Sea basin were recently studied by Turan et al. (2017) who recognized five species: *Alburnoides fasciatus* from the Northeastern Black Sea basin in Turkey, Georgia and Russia, *A. kurui* from tributaries of the Yesilirmak River, *A. freyhofi* from tributaries of the Kızılırmak River, *A. koss-wigi* from tributaries of the Sakarya River, and *A. tzanevi* from small streams in Thrace and adjacent Anatolia. Here, we describe an additional unnamed species from the Büyük Melen, a catchment situated between the Sakarya and Kızılırmak

rivers. As well, we identify the population from streams in Izmit Province as *A. tzanevi*.

Materials and methods

Fish were caught by pulsed DC electro-fishing equipment and killed by over anaesthetization, fixed in 10 % formaldehyde and stored in 4 % formaldehyde. Measurements were made with a dial caliper and recorded to 0.1 mm. All measurements are made point to point, never by projections. Counts and measurements follow Turan et al. (2016). Lateral line scale count includes scales on the caudal-fin base. The last two branched dorsal- and anal-fin rays articulating on a single

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Literature cited

- Bogutskaya, N. G. & B. W. Coad. 2009. A review of vertebral and fin-ray counts in the genus *Alburnoides* (Teleostei: Cyprinidae) with a description of six new species. *Zoosystematica Rossica*, 18: 126–173.
- Guindon, S., J.-F. Dufayard, V. Lefort, M. Anisimova, W. Hordijk & O. Gascuel. 2010. New algorithms and methods to estimate maximum-likelihood phylogenies: assessing the performance of PhyML 3.0. *Systematic Biology*, 59: 307–321.
- Hall, T. A. 1999. BioEdit: a user-friendly biological sequence alignment editor and analysis program for Windows 95/98/NT. *Nucleic Acids Symposium Series*, 41: 95–98.
- Kimura, M. 1981. Estimation of evolutionary distances between homologous nucleotide sequences. *Proceedings of the National Academy of Sciences*, 78: 454–458.
- Kottelat, M. & J. Freyhof. 2007. *Handbook of European freshwater fishes*. Kottelat, Cornol & Freyhof, Berlin, xiv + 646 pp.
- Kumar, S., G. Stecher, M. Li, C. Knyaz & K. Tamura. 2018. MEGA X: molecular evolutionary genetics analysis across computing platforms. *Molecular Biology and Evolution*, 35: 1547–1549.
- Librado, P. & J. Rozas. 2009. DnaSPv5: a software for comprehensive analysis of DNA polymorphism data. *Bioinformatics*, 25: 1451–1452.
- Posada, D. 2008. jModelTest: phylogenetic model averaging. *Molecular Biology and Evolution*, 25: 1253–1256.
- Ronquist, F. & J. P. Huelsenbeck. 2003. MrBayes 3: Bayesian phylogenetic inference under mixed models. *Bioinformatics*, 19: 1572–1574.
- Swofford, D. L. 2003. PAUP*. Phylogenetic analysis using parsimony (*and other methods). Version 4. Sinauer Associates, Sunderland.
- Thompson, J. D., D. G. Higgins & T. J. Gibson. 1994. CLUSTAL W: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, position-specific gap penalties and weight matrix choice. *Nucleic Acids Research*, 22: 4673–4680.
- Turan, D., F. G. Ekmekçi, C. Kaya & S. S. Güçlü. 2013. *Alburnoides manyasensis* (Actinopterygii, Cyprinidae), a new species of cyprinid fish from Manyas Lake basin, Turkey. *ZooKeys*, 276: 85–102.
- Turan, D., Y. Bektaş, C. Kaya & E. Bayçelebi. 2016. *Alburnoides diclensis* (Actinopterygii: Cyprinidae), a new species of cyprinid fish from the upper Tigris River, Turkey. *Zootaxa*, 4067: 79–87.
- Turan, D., C. Kaya, E. Bayçelebi, Y. Bektaş & F. G. Ekmekçi. 2017. Three new species of *Alburnoides* from the southern Black Sea basin (Teleostei: Cyprinidae). *Zootaxa*, 4242: 565–577.

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