



Original Research Article

Reported of four new subspecies of *Ziziphora clinopodioides* (Lamiaceae) for the flora of Turkey

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In the current study, *Ziziphora clinopodioides* Lam. subsp. *elbursensis* (Rech.f.) Rech.f., *Ziziphora clinopodioides* Lam. subsp. *filicaulis* (Rech.f.) Rech.f., *Ziziphora clinopodioides* Lam. subsp. *kurdica* (Rech.f.) Rech.f. and *Ziziphora clinopodioides* Lam. subsp. *rigida* (Boiss.) Rech.f. four new subspecies record for the flora of Turkey, are reported and their distribution and characteristics were described. The sub specimens were collected in Van nad Hakkâri province from eastern Anatolia. Where the sub specimen of the *Ziziphora clinopodioides* Lam. are morphological description, photographs and distribution map of the new record are presented.

Key words: Lamiaceae, *Ziziphora clinopodioides*, four new records, Van, Hakkâri, Turkey

INTRODUCTION

Ziziphora L. comprises some 25-30 species of annual and perennial herbs, distributed throughout Africa, Asia and Europe (Li and Hedge, 1994). In the Flora of Turkey mentioned 5 species and 6 taxon reported that *Z. clinopodioides* Lam., *Z. capitata* L., *Z. persica* Bunge, *Z. tenuior* L., *Z. taurica* M. Bieb. subsp. *cleonioides* (Boiss.) P.H. Davis and *Z. taurica* M. Bieb. subsp. *taurica* (Edmonson 1982, Dirmenci 2012). *Z. clinopodioides* Lam., which is a perennial species, is divided into four subgroups (*rigida*, *glabrata*, *tomentosa* and *canescens*) based on largely calyx and corolla structure, leaf morphology, nutlet and sexual characters (Hedge, 1961). However, *Z. clinopodioides* Lam., which is a perennial taxon, is not divided into subspecies in the flora of Turkey while it is represented by nine subspecies [*Z. clinopodioides* Lam. subsp. *afghanica* (Rech.f.) Rech.f., *Z. clinopodioides* Lam. subsp. *bungeana* (Juz.) Rech.f., *Z. clinopodioides* Lam. subsp. *elbursensis* (Rech.f.) Rech.f., *Z. clinopodioides* Lam. subsp. *filicaulis* (Rech.f.) Rech.f., *Z. clinopodioides* Lam. subsp. *pseudodasyantha* (Rech.f.) Rech.f., *Z. clinopodioides* Lam. subsp. *kurdica* (Rech.f.) Rech.f., *Z. clinopodioides* Lam. subsp. *rigida* (Boiss.) Rech.f., *Z. clinopodioides* Lam. subsp. *ronnigeri* (Nábělek) Rech.f. and *Z. clinopodioides* Lam. subsp.

szowitsii (Rech.f.) Rech.f.] in the flora Iran (Jalas and Rechinger 1982). *Ziziphora* L. species are known by the local people under many names in Kurdish, e.g. "Rêyhan", "Zernix", "Anix", "Merzekew", "Cahtir", "Cahtira bej", "Zahter", "Zembûr". (Firat 2013).

MATERIALS AND METHODS

During floristic surveys in Van and Hakkâri province (Figure 1), in 2011, 2012, 2013 and 2016, specimens were collected of one unidentified subspecies from *Z. clinopodioides* Lam., therefore we decided to analyze the morphological characters of the species. Then collected some other specimens and examined them by using a wide range of literature about this species for identification (e.g. (Jalas & Rechinger 1982). As a result of (this, erase) efforts and with the light of characters observed, four new records for the flora of Turkey, are described.

Images of the living material were taken with a Sony DSCR1 digital camera. Geographical positions were identified using a Magellan eXplorist 710 GPS. According to the grid system (Davis 1965) these new sub species, which

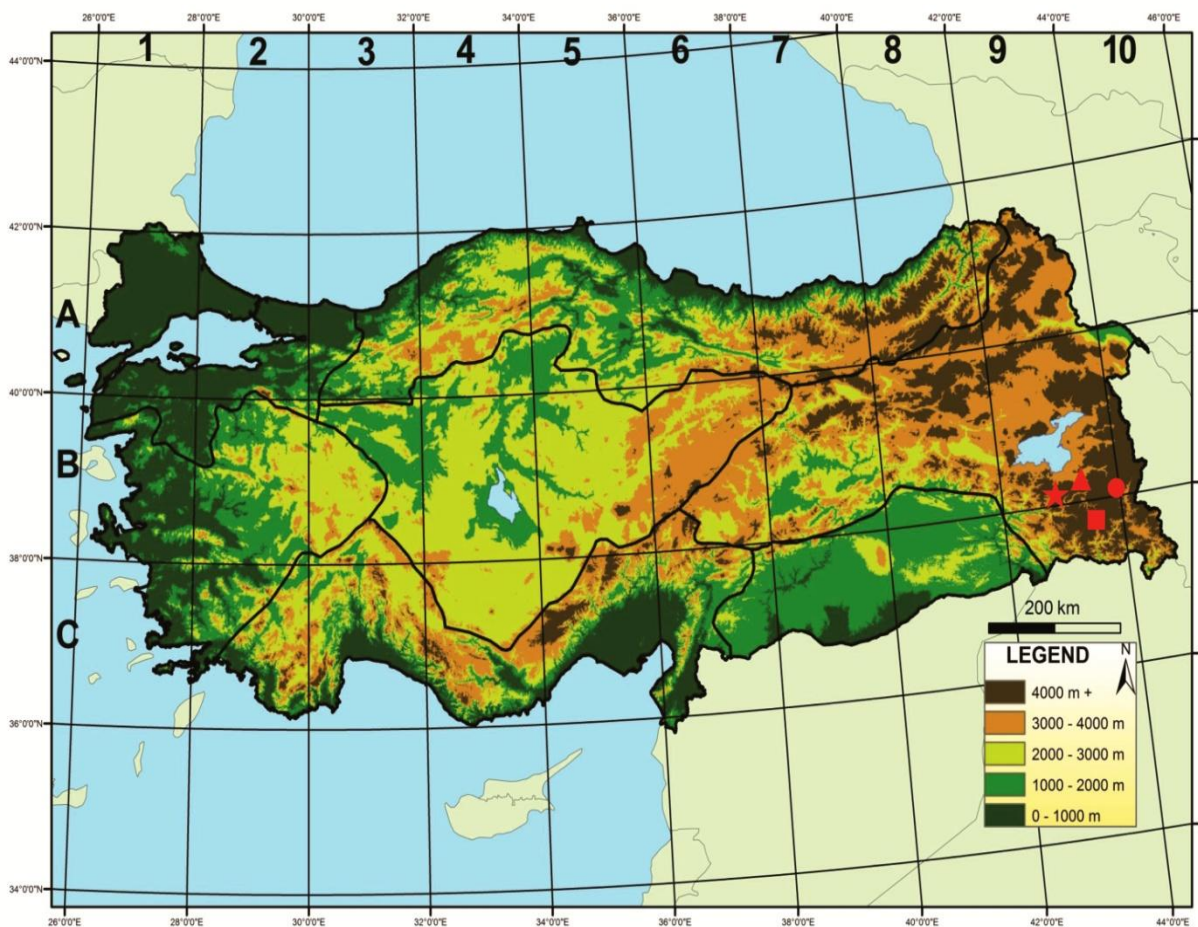


Figure 1: Distribution of *Ziziphora clinopodioides*; subsp. *elbursensis* (▲), subsp. *filicaulis* (■), subsp. *kurdica* (★) and subsp. *rigida* (●) in Turkey.

are present in Van and Hakkâri district, falls specifically within the B9, C9 square (Figure 1). A total of 10 herbarium specimens of the new species were collected from three adjacent localities and deposited in the University herbaria and (in the; erase) personal herbarium of the author (Herb. Fırat).

RESULTS

Ziziphora clinopodioides Lam. (Figure. 2-5)

Description:—Suffruticose, often mat-forming perennial. Stems prostrate to erect, much branched from base, to 50 cm, glabrous or ± hirsute. Leaves very variable size and shape, linear-lanceolate to ovate-oblong, rarely suborbicular, glabrous to ± pilose or velutinous. Bracts usually broader than leaves, sessile. Inflorescence a dense terminal head. Calyx 3.5–7 mm, glabrous to densely hirsute, frequently purplish in high-altitude forms. Corolla tube included in calyx (females: or shortly exerted (hermaphrodites). Corolla mauve to pale lilac (rarely

white), (7-)10–12 mm, tube ± included in calyx. Nutlets pale brown.

Habitat: Steppe and stony slopes, 1500–3300 m.

Phenology: Flowering from June to September

Distribution: Caucasia, N. Iraq, Iran (except S.), Afghanistan, C. Asia.

Specimens examined

Z. clinopodioides Lam. subsp. *elbursensis* (Rech.f.) Rech.f.=TURKEY. B9 Van: Nebırnaf plateau, steppe, 2900 m, 37°54'44" N, 43°43'10" E, coll. 27 August 2012, *M. Fırat* 28914 (Herb. M. Fırat). *Z. clinopodioides* Lam. subsp. *filicaulis* (Rech.f.) Rech.f.=TURKEY. C9 Hakkâri: Kandil plateau, steppe, 2956 m, 37°37'56" N, 43°57'05" E, coll. 21 July 2011, *M. Fırat* 27775 (Herb. M. Fırat). *Z. clinopodioides* Lam. subsp. *kurdica* (Rech.f.) Rech.f.=TURKEY. B9 Van: Bahçesaray, Sampaz, helin stream, steppe, 1760 m, 37°58'25" N, 42°47'05" E, coll. 28 July 2016, *M. Fırat* 28862 (Herb. M. Fırat). *Z. clinopodioides* Lam. subsp. *rigida* (Boiss.) Rech.f.=TURKEY. B9 Van: from Hoşap to Karadağ, steppe, 2100 m, 30 July 2012, *M. Fırat* 28862 (Herb. M.



Figure 2: *Ziziphora clinopodioides* subsp. *elbursensis*; A. habit, B. flowers



Figure 3: *Ziziphora clinopodioides* subsp. *filicaulis* **A.** habit, **B.** flowers

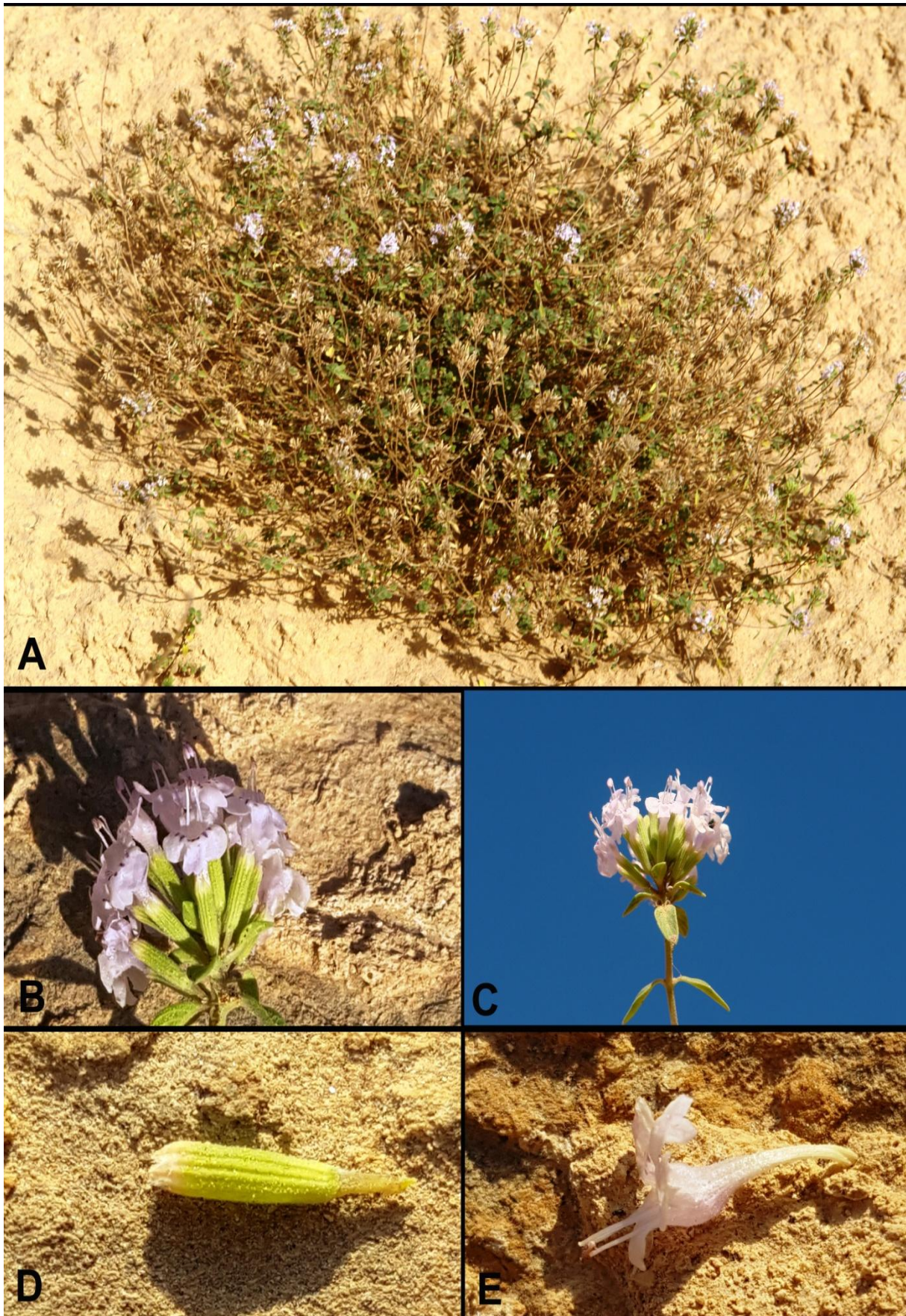


Figure 4: *Ziziphora clinopodioides* subsp. *kurdica* A. habit, B-C. flowers, D. calyx, E. corolla



Figure 5: *Ziziphora clinopodioides* subsp. *rigida* **A.** habit, **B** flowers

Fırat).

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