

# INTRODUCTION OF A NEW GENUS OF CANDONINAE FROM TEXAS (USA)

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## Introduction:

Over the last decade, studies on freshwater ostracods of Texas have been releasing interesting results which clearly portrayed unique and high species diversity in the state (Külcöylüoğlu et al. 2021, Külcöylüoğlu and Tuncer 2022, Külcöylüoğlu et al. in review). These studies, in total, revealed about 117 freshwater ostracods. This number is about 25% to 33% of the species in the country (Külcöylüoğlu, pers. obs.). Moreover, this number is also found relatively high compared to many other countries in the world such as Turkey (160 spp.) (Külcöylüoğlu pers. obs.), Italy (156 spp.) Pieri et al. (2015, 2020), China (154 spp.) (Yu et al. 2009), India (152 spp.) (Karuthapandi et al. 2014), and Germany (126 spp.) (Frenzel & Viehberg 2005). Hence, considering the areas and habitats not sampled and/or not studied yet, the state of Texas represents much higher species diversity. Indeed, contemporary studies in different taxonomic groups (Gibert et al. 1990, Hall et al. 2004; Segers 2008, Hutchins et al. 2020, Gibson et al. 2021) also support this view along with potentially high species diversity of the area. Such richness and high diversity is not only found in the epigeal aquatic habitats but also in the subterranean and ground water habitats. The aim of this study is to introduce a new genus in the family Candonidae from Honeycut Spring, Texas, USA.

## Results and Discussion:

Ostracod species diversity is one of the most interesting issues in the waters of Texas where there are about 117 nonmarine ostracods belonging to 43 genera reported so far. We now introduce a new species of a new genus collected from Honeycut Spring, a rheochrene spring in Blanco County, Texas. Both taxonomic description and results of cladistic analyses showed that new genus (*Alaecandona leonidas* n.gen. n.sp.) belongs to the tribe Cabralcandonini in the subfamily Candoninae (family Candonidae) and displays several features (e.g., presence of two alae on the valves, hexagonal reticulations on the valves, A1 segments, A2 claws, shape and presence of two claw-like setae on the clasping organs, absence of d2 and dp setae on T2 and T3, absence of alpha and beta setae on Md, shape of hemipenis) different than other genera of the tribe. Accordingly, numbers of nonmarine ostracods increased to 118 species belonging to 44 genera in the area. This supports the idea that ostracod species diversity is relatively high and needs further attention.

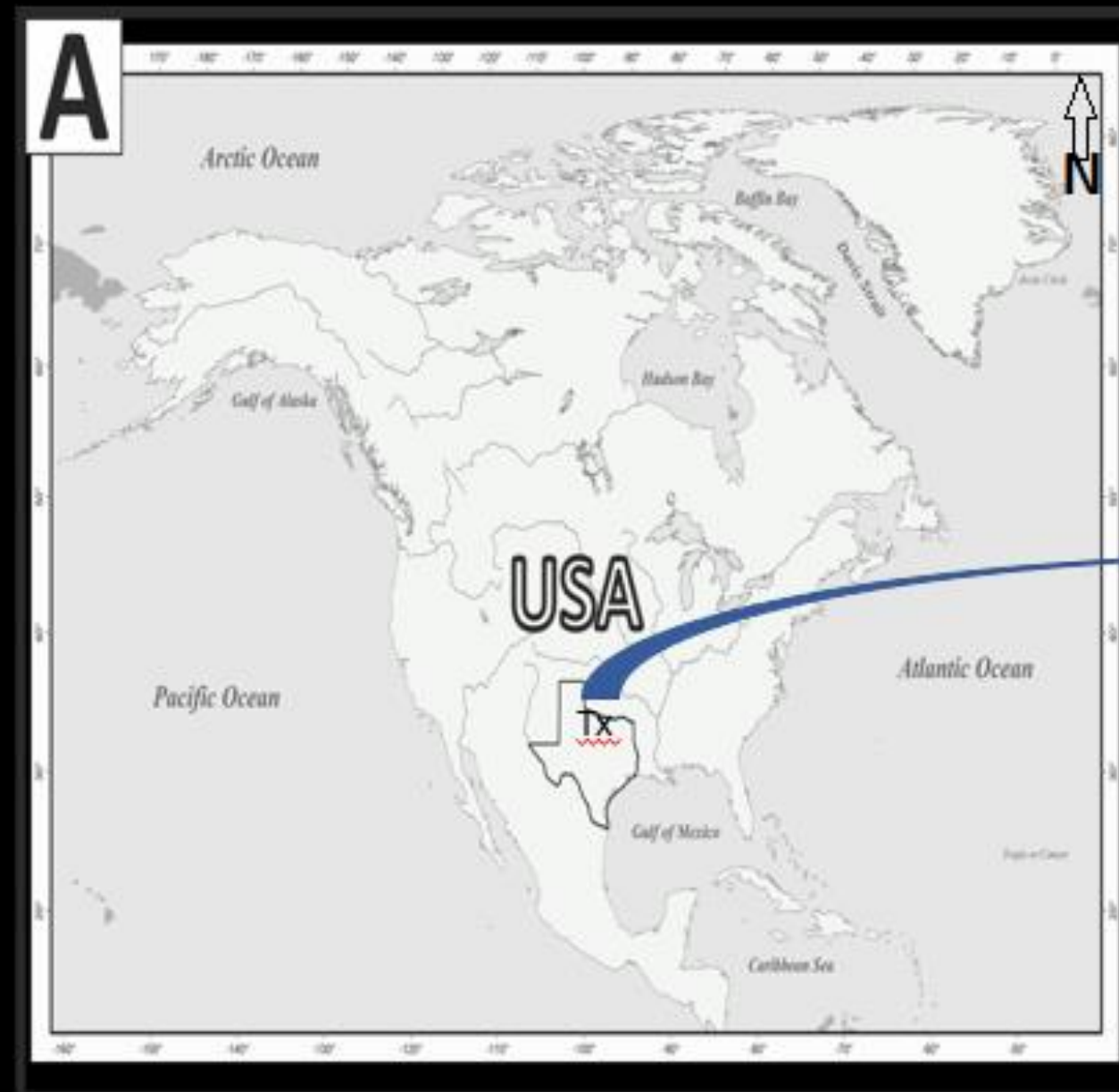


Figure 1. A) Map of USA and Texas (Tx). B) Type locality (Honeycut Spring).



## Materials and Methods:

Samples were collected from the headwaters of Honeycut Spring (Blanco Co., Texas, USA) (Fig. 1). They were kept in 70% ethanol *in situ* and brought to the laboratory where ostracods were separated from the sediment. Olympus BX-51 microscope was used for species identification following several published keys and descriptions (Meisch 2000; Karanovic 2012, Külcöylüoğlu et al. 2021). We followed standard processes for species dissection. A camera lucida attached to the Olympus light microscope was used for line drawings (not shown here). Carapace and valve details were photographed with Scanning Electron Microscope (SEM) at the Department of Geology, Hacettepe University. To show species clustering relationship, we used Winclada and Nona programs. All samples are kept at the Limnology Laboratory of the Biology Department, Bolu Abant İzzet Baysal University, Bolu, Turkey.

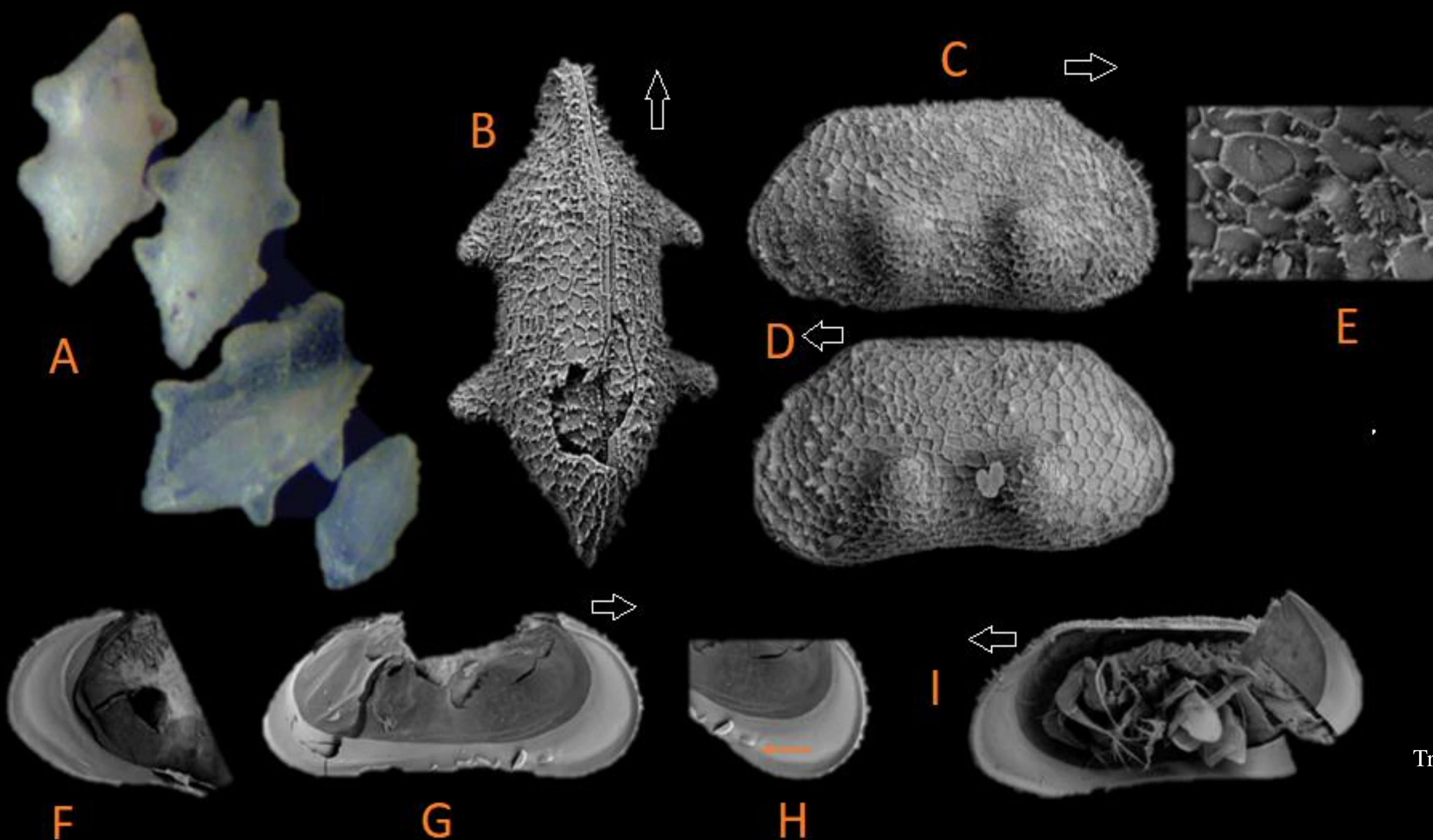


Figure 2: New genus . A, photos of males and females; B, Dorsal view of male; C-D, external views of male right and left valve; E, pore opening with seta; F, posterior view of female left valve; G, female internal view; H, female anterior margin internal view; I, male internal view. Note the broken parts in B, G and I. Adult size: L=0.51-0.56 mm, H=0.24-0.27 mm, W=0.20-0.28 mm Others not in scale. Arrow shows node .

## Systematic Description

Class: Ostracoda Latreille, 1802

Subclass: Podocopa Sars 1866

Order: Podocopida Sars, 1866

Suborder: Cypridocopina Baird, 1845

Superfamily: Cypridoidea Baird, 1845

Family: Candonidae Kaufmann, 1900

Subfamily: Candoninae Kaufmann, 1900

Tribe: Cabralcandonini Külcöylüoğlu et al. 2019

## Acknowledgments:

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## Selected References:

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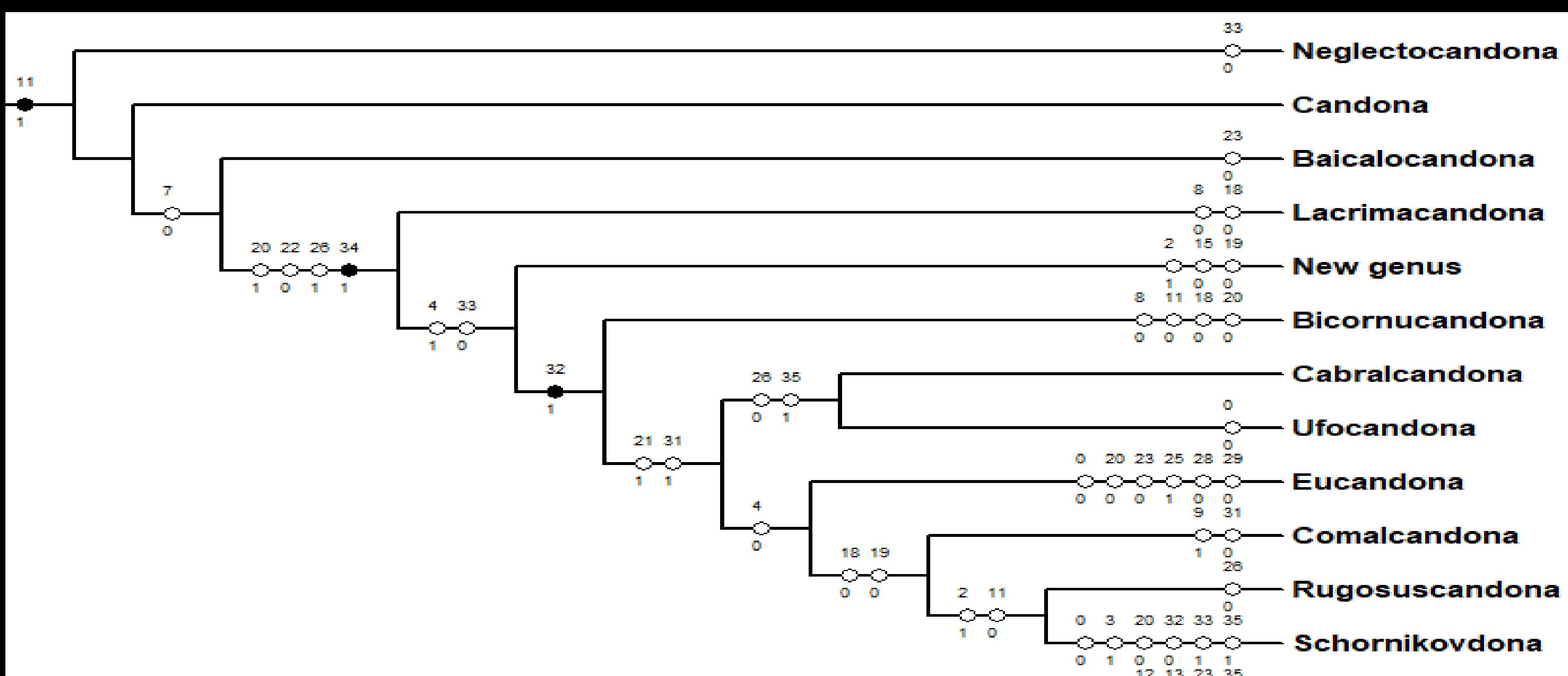


Figure 3. Cladistic relationships among the genera of tribe Cabralcandonini based on 35 characters were used in Winclada-Nona program.