



Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com



Palaeontology of the upper Miocene vertebrate localities of Nikiti (Chalkidiki Peninsula, Macedonia, Greece) Proboscidea[☆]



George E. Konidaris^{a,b,*}, George D. Koufos^a

^a Aristotle University of Thessaloniki, Department of Geology, Laboratory of Geology and Palaeontology, 54124 Thessaloniki, Greece

^b Eberhard Karls University of Tübingen, Palaeoanthropology, Senckenberg Center for Human Evolution and Palaeoenvironment, Rümelinstr. 23, 72070 Tübingen, Germany

ARTICLE INFO

Article history:

Received 19 November 2014

Accepted 19 January 2016

Available online 29 January 2016

Keywords:

Proboscidea
 Choerolophodon
 Turolian
 Late Miocene
 Greece
 Taxonomy
 Biostratigraphy

ABSTRACT

In this article, we present the proboscidean assemblage from the upper Miocene vertebrate locality Nikiti 2 (Chalkidiki Peninsula, Macedonia, Greece). Based on the dental remains, the material belongs exclusively to the genus *Choerolophodon*. The morphology of the dp3/DP3 and the dimensions of the deciduous dentition clearly distinguish the Nikiti 2 choerolophodont from the early Vallesian *Choerolophodon anatolicus* and permit its assignment to *C. pentelici*. *C. pentelici* is represented in SE Europe–SW Asia by a primitive morph, known from the late Vallesian–earliest Turolian, and an advanced morph Turolian in age. The morphometric features of the Nikiti 2 specimens and their comparison with the choerolophodont material from upper Miocene localities of the wider region indicate that the Nikiti 2 *C. pentelici* belongs to the advanced morph of the species, suggestive for a Turolian age for the locality. These results agree with the rest of the fauna, which is correlated to the early Turolian (MN 11).

© 2016 Elsevier Masson SAS. All rights reserved.

1. Introduction

In the present article, we describe the proboscidean dental remains from the upper Miocene locality Nikiti 2 (Chalkidiki Peninsula, Macedonia, Greece). Proboscidean remains are known from both Nikiti 1 (NKT) and Nikiti 2 (NIK) localities, but unfortunately NKT provided only few postcranial elements. Conversely, NIK yielded a quite rich mandibular and dental sample of *Choerolophodon*, making possible its systematic study and determination of its evolutionary stage. Choerolophodont remains are relatively abundant during the upper Miocene of SE Europe–SW Asia; however, only few fossiliferous localities are well dated, and therefore the aim of this study is to provide additional information on the taxonomy and biostratigraphy of late Miocene choerolophodonts. Details on the history, stratigraphy and age of the Nikiti localities are given in Koufos (2016) and Koufos et al. (2016).

2. Material and methods

The studied dental material originates from Nikiti 2 (NIK) and belongs to juvenile individuals apart from an isolated upper

permanent tusk, which was found about 100 m away from the NIK excavation spot, but at the same stratigraphic level. The dental terminology used here follows Tassy (1996a). Mandibular measurements are taken from Tassy (1996b). Measurements have been realized with a digital caliper or, in the case of large mandibular measurements, with a measuring tape. The Nikiti collection is stored at LGPUT.

Institutional abbreviations: HGI: Hungarian Geological Institute, Budapest; LGPUT: Laboratory of Geology and Palaeontology, Aristotle University of Thessaloniki (Greece); MGL: Musée Cantonal de Géologie, Lausanne (Switzerland); MNHN: Muséum National d'Histoire Naturelle (Paris, France); NHMA: Natural History Museum of the Aegean, Mytilinii, Samos Island, Greece; NHMW: Naturhistorisches Museum Wien (Austria).

Dental abbreviations: dp/DP: lower/upper deciduous pre-molar; m: lower molar.

3. Systematic palaeontology

Order Proboscidea Illiger, 1811
 Superfamily Elephantoidae Gray, 1821
 Family Gomphotheriidae Hay, 1922
 Subfamily Choerolophodontinae Gaziry, 1976
 Genus *Choerolophodon* Schlessinger, 1917
Choerolophodon pentelici (Gaudry and Lartet, 1856)
 Figs. 1–3

[☆] Corresponding editor: Dimitris S. Kostopoulos.

* Corresponding author. Eberhard Karls University of Tübingen, Palaeoanthropology, Senckenberg Center for Human Evolution and Palaeoenvironment, Rümelinstr. 23, 72070 Tübingen, Germany.

E-mail address: geo.konidaris@gmail.com (G.E. Konidaris).



Fig. 1. *Choerolophodon pentelici*, Nikiti 2 (NIK), Chalkidiki Peninsula, Macedonia, Greece; early Turolian, MN 11. **a.** Right mandible with dp3, LGPUT-NIK-1592, lateral view; **b–c.** Mandible with right and left dp3–dp4 and m1 in alveolus, LGPUT-NIK-1593; **b:** lateral view; **c:** dorsal view. Scale bar: 10 cm.

Locality: Nikiti 2 (NIK), Chalkidiki Peninsula, Macedonia, Greece.

Age: Early Turolian (MN 11), late Miocene.

Material: Upper dentition (Figs. 2 and 3(a–j)): Right upper permanent tusk of adult individual, NIK-1776; 4 upper (deciduous?) tusks of juvenile individuals, NIK-1016, 1606, 1607, 1614; 2 right DP2, NIK-184, 1591; 4 left DP2, 1608, 1609, 1610, 1628; 2 right DP3, NIK-849, 1605; 2 left DP3, NIK-261, 1611; maxilla fragment with left DP2–DP3, NIK-1589; maxilla with right DP3–DP4 and left DP2–DP4, NIK-1615; cranium fragment with left DP3 and DP4 in alveolus, NIK-1613.

Lower dentition (Figs. 1 and 3(k–p)): 2 right dp3, NIK-1586, 1590; 2 left mandibular fragments with dp3 in alveolus, NIK-1585, 1588; right (a) and left (b) hemi-mandibles with dp3 and dp4 in alveolus, NIK-1592; left hemi-mandible with dp3 and dp4 in alveolus (a) and right dp3 (b), NIK-1604; mandible with dp3–dp4 and m1 in alveolus, NIK-1593; left mandibular fragment with dp4 in alveolus, NIK-1587; mesial part of right dp4, NIK-1612; left dp4 fragment, NIK-262.

Measurements: See Tables 1–3.

Description:

Mandible. Corpus and ramus form obtuse angle, $\sim 135^\circ$ in NIK-1593 and $\sim 145^\circ$ in NIK-1592 (Fig. 1). The ventral border of the symphyseal rostrum extends the corpus without bending downwards, while the dorsal ridge is deflected $\sim 20\text{--}25^\circ$ relative to the alveolar plane. Laterally, the almost circular mental foramen is

situated at the level of the mesial border of dp3, and more mesially the well-developed anterior alveolar foramen.

Upper tusk. The upper permanent tusk NIK-1776 belongs to an adult individual. It is large and strongly curved; it bends outwards and upwards and at the tip turns inwards (Fig. 2). The cross-section is circular; it is formed by concentric lamellar dentine and run through centrally by the lumen. It lacks an enamel band. The upper (deciduous?) tusks belonging to juvenile individuals bear additionally an enamel rugose cap; they are also curved, with a rounded to oval cross-section (Fig. 3(a–d)).

DP2. The mesial part of the tooth is high and narrow, whereas the distal one is low and wide, due to the lingual enlargement of the tooth (Fig. 3(e, f)). Cingulum is present mesially, lingually and distally; it is stronger on the lingual wall of the mesial part of the tooth. The protocone and the paracone are conjunct, forming the stronger part of the tooth; however, their apices are distinct. The metacone and hypocone are well separated. In NIK-1609, an additional, relatively strong conelet is present between these cusps. NIK-184, 1609, 1610, 1628 exhibit a strong conelet in front of the metacone; it is also present, though much weaker in NIK-1591, 1608, 1615. Weak conelets fill the crown's surface. Choerodonty and ptychodonty are well expressed; cementodonty is present (e.g., in NIK-1609) or absent (e.g., in NIK-1608).

DP3. It consists of two lophs with a mesial and more developed distal cingulum (Fig. 3(g–j)). The mesial cingulum is almost semicircular and consists of conelets in a row. The first posttrite

Download English Version:

<https://daneshyari.com/en/article/4747973>

Download Persian Version:

<https://daneshyari.com/article/4747973>

[Daneshyari.com](https://daneshyari.com)