Permian Insects from Paraná Basin, South Brazil, IV Coleoptera

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ABSTRACT

Two Permian Insects *Kaltaniocupes ponomarenko* Pinto, sp. nov. and *Protocupoides rohdendorfi* Pinto, sp. nov. of the family Permocupedidae are described. They were found associated to others insects, crustaceans, fish scales and plants at Irati Formation, in Rio Grande do Sul State, South Brazil.

SINOPSIS

São descritos dois Coleopteros (Insecta) do Permiano: *Kaltaniocupes ponomarenko* Pinto, sp. nov. e *Protocupoides rohdendorfi* Pinto, sp. nov. da família Permocupedidae. Eles foram encontrados na Formação Irati, associados a outros insetos, crustáceos, escamas de peixes e plantas no Estado do Rio Grande do Sul, Sul do Brasil.

INTRODUCTION

This paper follows those describing the associated fauna discovered at a cutting in the road BR 290 Km 185+500 (ex Km 78) Porto Alegre-Uruguayana, Rio Grande do Sul State.

From that place was registered insects of Mecoptera (Pinto, 1972); Neuroptera (Pinto et Ornellas, 1980); Homoptera (Pinto et Ornellas, 1981); Homoptera (Pinto, 1986) associated to crustaceans (Pygocephalomorpha), fish scales and plants (Glossopteridales).

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Geographical and stratigraphical distribution

These insects were found in a cutting in the road BR 290 Porto Alegre-Uruguayana, RS, at Km 185+500 (ex Km 78), near Minas do Leão coal mines, in sediments of Irati Formation.

The age of Irati Formation was already discussed in a paper on crustaceans (Pinto, 1971) in the description of Megoptera Insects (Pinto, 1972a) and Insects and crustaceans (Pinto, 1972b) where the author call attention to the following data:

a) The crustaceans of Pygocephalomorpha are normally found associated to the reptile Mosasaurus, association that corresponds to Upper Dwyka Shales in South Africa.

b) The Megoptera insects lead to an age corresponding to the Group Illinsk (Kazanian) or Kuznetzk, groups considered by most of Russian geologists as Upper Permian. However, some others put the Kuznetzk as Upper part of the Lower Permian.

Otherwise the two present species of Coleoptera are: Kaltenfussipes ponomarenkoi sp. nov. quite similar to K. acutus Ponomarenko, 1963 of the Tatarsky Formation, P1, Upper Permian from the Kirovskaye adj. and Protocoumides rohdendorfi sp. nov. quite similar to P. planulstskii Rohdendorf, 1961 from Kuznetzk Formation, Kuznetzk Basin, Kaltan.

The palynological studies (Daemon et Quadros, 1970) have reached also an Upper Permian age, Kazanian for the Irati Formation.

Based on these data the age could be stated as Upper part of the Lower Permian or more probably Upper Permian, Kazanian.
SYSTEMATICS

Phylum
Classis
Infra-classis
Super-ordo
Ordo
Sub-ordo
Familia

ARTHROPODA
Insecta
Neoptera
Coleopteroidea
Coleoptera
Archostemata
Permoocupedidae Martinov, 1933

Genus Kaltanicupes Rohdendorf, 1961

Kaltanicupes Rohdendorf, 1961 p. 402
p. 73; excl. K major


GENERIC-DIAGNOSIS Small to medium size Coleopterae. Elytra slightly convex, cellulate venation, the cells round or multangular irregular. Costal area with a row of small cells. The subcostal area with three rows of cells. R sometimes, goes to the anterior border of the elytra. Cu2, normally is not clear. M area with two rows of cells. A2 turns to the posterior border in its apical third, the second row of its cells goes only to the middle of the wing. A3 is clear in spite to being short. The distal half of area behind A2 with one row of cells.

Type species Kaltanicupes richteri Rohdendorf, 1961, Kuznetzk Form., Kaltan.

Kaltanicupes ponomareenkoi Pinto, sp. nov.

Text-fig. 1 Pl. I fig. 1a,b

Designatio nominis: In honour to Dr. A.G. Ponomarenko.

Holotype: A mold of an elytra and its counter-part. MP, UFRGS MP-I-5269.

Locus typicus: A cutting at Km 185 + 500 of the road Porto Alegre-Uruguayana, RS, Brazil.

Stratum typicum: Irati Formation Upper Permian.

DIAGNOSIS Elytra elongate acute of small size, 3.8 mm of length. Base of R-RS with two rows of cells. The second row of cells between M and Cu2 going after the midlength; after A, three rows of cells.
DESCRIPTION  Elytra 3.8 mm of length, elongate, slightly wider at the center of the wing and acute at the apex. The costal area very narrow. The subcostal area narrowed backwards and its third row of cells reaching only a little after the middle length of the wing. R is straight. At the base of the wing, between R-RS and Cu₂-A are two rows of cells, between RS-M and SC-R one and between M and Cu₂ four rows of cells. The second row of cells after Cu₂ goes far from the end of A, but less than one third of the wing length. After A, three cells. The cells are irregularly rounded. The sutural list shows a row of small and feeble cells.

REMARKS  This species is quite similar to *Kaltaniacupes acutus* Ponomenenko, 1963 from the Kazansk Formation, Upper Permian, Kirovka District, USSR, but differs from it in having two rows of cells between R-RS instead of one; the second row of cells at subcostal area goes after the midlength of the wing; the second row of cells between M and Cu₂ going only a little after the midlength and after A having three cells and not six like that species.

**Genus Protocunoides Rohdendorf, 1961**

* Protocunoides Rohdendorf, 1961 p. 408
* Tomacunoides Rohdendorf, 1961 p. 409
* Trsicunoides Rohdendorf, p. 410

**DIAGNOSIS** Small coleoptera. Elytra relatively wide. Coastal area with three rows of cells. The basal veins did not unite before the apex of elytra. A₂ is longer goes up to apex of elytra, the second row of cells reach normally the middle of the elytra and only slightly shorter than the first.
Type-species *Protocupoides plant lestikovii* Rohdendorf, 1961
Upper Permian?, Kuznetzk Basin, Kaltan

*Protocupoides rohdendorfi* Pinto, sp. nov.
Text-fig. 2, Pl. I fig. 2

Designatio nominis: In honour to Dr. B.B. Rohdendorf
Holotypus: A mold of a part of an elytra and its counter-part. MP., UFRGS, MP-I-5266
Locus typicus: A cutting at Km 185+500 of the road Porto Alegre-Uruguayana, RS, Brazil.
Stratum typicum: Irati Formation, Upper Permian.

DIAGNOSIS Elytra wide 1.22 mm, the preserved distal part has 3.10 mm of length. The second row of cells of A₂ is slightly shorter than the first one; the costal area with three rows of cells in almost all the area, except distally where are two rows of parallel cells.

![Diagram of *Protocupoides rohdendorfi*](image)

Fig. 2 - *Protocupoides rohdendorfi* Pinto, sp. nov.

DESCRIPTION A well preserved fragment of a small elytra. The costal and subcostal area having only the distal part preserved. Anterior border slightly convex; posterior border almost straight; apex acute rhomboid. Costal area narrow not well preserved; subcostal area with three rows of cells except distally where are two rows. Four straight basal veins R, M, Cu₂ and A₂ and between them two rows of parallel irregularly round cells. The basal veins reach the apex separately. M is longer than the other. Sutural area with small irregular cells.
REMARKS This species presents great similarity to Protocupoide s plavls-
ahtkov Rohdendorf, 1961, from the Kuznetsk basin but differs from it in
having the cells round and the two rows of cells of A2 reaching almost
the apex of the elytra.
BIBLIOGRAPHY


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Fig. 1a, b Kaltanicupes ponarenkoï Pinto, sp. nov.

Fig. 2 Protocupoides rohendorfï Pinto, sp. nov.