

## Ostracoda: database for the Neogene of Portugal

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### Resumo

**Palavras-chave:** Ostracodos; base de dados; Neogénico; Portugal.

Apresenta-se uma base de dados denominada "Ostracoda: database for the Neogene of Portugal", elaborada no âmbito do projecto "POCTI/36531/PAL/2000 – Studies on Portuguese Palaeontology / Post-Paleozoic". Contém informação acerca de 158 espécies identificadas em cortes e sondagens de terrenos neogénicos portugueses.

### Abstract

**Key words:** Ostracoda; Database; Neogene; Portugal.

The "Ostracoda: database for the Neogene of Portugal", prepared under the Project "POCTI/36531/PAL/2000 – Studies on Portuguese Palaeontology / Post-Paleozoic", is presented. It provides information about 158 espécies that have been recognized in sections and boreholes concerning Neogene units in Portugal.

### Introduction

After World War II there was everywhere an increasing interest on fossil Ostracoda. Among microfossils, Ostracoda provided a lot of complementary data. Even if foraminifera and planctonic ones in special kept the leading chronologic role, ostracods revealed themselves as a group that could yield some age data but were especially useful for environmental reasons. Much work carried on Europe's Neogene formations' Ostracoda has been presented in the successive Mediterranean Neogene Congresses.

Data were particularly scant as far as the Neogene of Portugal is concerned. In the late fifties, Jaime Martins Ferreira and Arménio Tavares Rocha revealed that samples often contained ostracods that could not have been identified then. Lack of data was general in Portugal.

Aware of the growing general interest on the Ostracoda, one of us (M.T.A.) tried to launch a Project on these fossils,

integrated in a broad Program about the Neogene of the Lower Tagus Basin that has been developed because of the very rich set of data it provided, even at the Western Europe's scale.

In order to correct such an important lacune in our knowledge, M.T.A. proposed (1973) António Nascimento Joaquim the study of Neogene Ostracoda as a research theme that could be developed into a Doctoral thesis. A. N. accepted. He begun working part-time on this subject while still as a technician at the Mineralogic and Geologic Museum of the University of Lisbon. He even resumed research work after a most discouraging event, the disastrous fire that devastated the Museum (March 18th, 1978) when nearly all his documentation and samples were lost.

His integration in the Research Center created in this University (1975) and his transfer in 1979 to the Universidade Nova de Lisboa arose opportunities for full-time research as a member of a team that mainly

worked on the Neogene of Portugal. In this context, A. Nascimento prepared his Thesis under the supervision of M.T. Antunes. Technical preparation on Ostracoda was obtained through stages at the Université Claude-Bernard (Lyon I, France) with Gilles Carbonnel, at the Université de Bordeaux I with Odette Ducasse, and in several other institutions in France (Société nationale ELF-Aquitaine, in Pau, with J. H. Oertli), and in Italy at the Universities of Palermo (with G. Ruggieri) and Napoli (with G. Bonaduce). His Ph.D. degree was obtained at the New University of Lisbon in 1987, where he became a Senior Researcher ("Investigador Principal") until his retirement in 2001.

Since then, more than twenty papers on Portuguese Neogene ostracods were produced in Portuguese and foreign periodicals. They emphasized the interest of these microfossils. Once again, ostracod associations yielded, not only some chronostratigraphic data, but most important environmental ones as well. Ostracoda are excellent indicators on salinity, depth and temperature.

Unfortunately, serious health problems hampered Nascimento's work. He still managed to prepare a complete list of the taxa he had identified, but too incomplete as far as the concerned sites, age and other data were concerned. This list is therefore a not very useful one.

This prompted M.T.A. to try to prepare a more useful tool for anyone interested in the Portuguese Neogene Ostracoda. Ivo Meco and Paulo Legoinha accepted this task. The following database aims to comprise all the available data in a well structured way; it also includes pertaining stratigraphic, paleoecologic, paleogeographic, taxonomic and references data. All this may be easily consulted by everyone, not only by specialists.

In this first phase, bibliographic research dealt only with papers on Portuguese Neogene that reported ostracod occurrences.

### **Ostracoda: database for the Neogene of Portugal**

The database was created through the Macintosh system Program 4D First 1.2.5.

The first part of our work was the conception of the informatic structure. Data was subsequently introduced. Several input-output layouts could be drawn according to the software characters.

As far as the input's layout is concerned, individual files were created for each species (fig. 1) containing the following research fields:

- Genus;
- Species;
- Author and description date (year);

- Stratigraphic data according to the divisions/stratigraphic units for the Lisbon and Setúbal Peninsula Miocene as defined by J. C. Berkeley Cotter (Choffat, 1950; Cotter, 1956; Antunes *et al.*, 1996);
- Presence recorded in geologic sections and borings;
- Chronostratigraphy of the beds where ostracods have been collected;
- Paleogeographic data;
- Paleoecologic data;
- Eventual remarks;
- References;
- SEM images of the test.

The published species' images were scanner digitalized and treated through the Adobe Photoshop 5.5 Program.

All information is presented in a simple way, both in its contents and graphically. References may provide a deeper information. At present, the database comprises the descriptions concerning 158 ostracod species that have been identified from Neogene Portuguese units exposed in 16 geologic sections and cut by 2 boreholes. The species belong to 79 genera; a further 9 remain in doubt owing to insufficient data for diagnosis.

As far as the output layouts are concerned, lists including the species' name, paleoecology and the geologic section from where it has been described are presented. Nevertheless it is easy to create other output layouts for special fields one wants to list.

Search may be done through a single field. It also may be done through the association of conditions simultaneously concerning several information fields: as an example, which infralittoral species (field: paleoecology) occur in the VIa division (field: stratigraphic distribution)?

### **Conclusions**

The "Ostracoda: database for the Neogene of Portugal" contains information about 158 ostracod species that have been recorded in 16 geologic sections and 2 boreholes.

We think it is important to proceed the work that has been carried on in order to actualize it with additional data from new samples from other sections and boreholes, even from other geologic periods.

We intend to make the "Ostracoda: database for the Neogene of Portugal" available in CD and in the Internet.

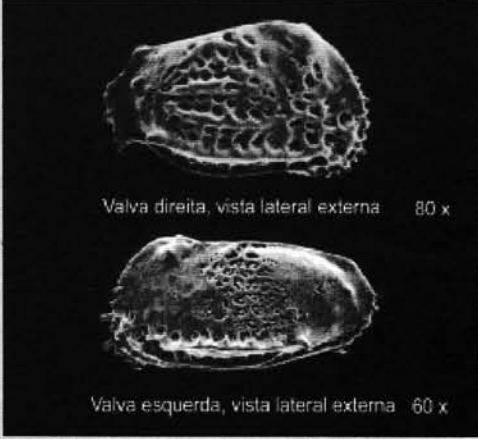
| <b>Ostracoda</b>   |   |
|--|---|
| <b>Gênero</b>  | <i>Ruggieria</i>  |
| <b>Espécie</b>   | <i>Ruggieria (Ruggieria) micheliana</i> (BOSQUET, 1852) |
| <b>Lâmina nº</b>   |   |
| <b>Distribuição nos cortes e sondagens</b>   |   |
| Nome do corte  | Camada  |
| Sondagem S.135   | prof. 76-82, 90-94 m.                                   |
| Carcavelos   | 3, 7-10   |
| Venda Nova   | 8   |
| Benfica  | 3, 10   |
| Rua do Salitre   | 1, 2  |
| <b>Paleoecologia</b>   |   |
| Água doce  | <input type="checkbox"/>                                |
| Salobro  | <input type="checkbox"/>                                |
| Litoral  | <input type="checkbox"/>                                |
| Infralitoral   | <input checked="" type="checkbox"/>                     |
| Circalitoral   | <input checked="" type="checkbox"/>                     |
| Batial   | <input type="checkbox"/>                                |
| <b>Paleogeografia</b>  |   |
| Portugal   | <input type="checkbox"/>                                |
| Aquitânia  | <input type="checkbox"/>                                |
| <b>Outras notas</b>  |   |
| Na Bacia do Tejo a ornamentação da superfície das valvas apresenta variações bastante nítidas, no que respeita ao desenvolvimento das costilhas e extensão das partes lisas. As cristas secundárias e os alvéolos encontram-se mais ou menos representados e desenvolvidos, formando sucessivos termos de transição entre os exemplares. O grande  |   |
| <b>Distribuição Estratigráfica:</b>  |   |
| <b>Pliocénico:</b> <input type="checkbox"/><br><b>Miocénico:</b><br>VIIb <input type="checkbox"/> - Tortoniano<br>VIIa <input type="checkbox"/><br>VIc <input type="checkbox"/> - Serravaliano<br>VIb <input type="checkbox"/><br>VIa <input type="checkbox"/><br>Vc <input type="checkbox"/> - Langhiano<br>Va <input type="checkbox"/><br>IVb <input type="checkbox"/> - Burdigaliano<br>IVa <input checked="" type="checkbox"/><br>III <input checked="" type="checkbox"/><br>II <input checked="" type="checkbox"/><br>I <input checked="" type="checkbox"/> - Aquitaniano |   |
|    |   |
| <b>Referências Bibliográficas</b>  |   |
| - Informação e imagem retiradas de NASCIMENTO, A. (1988), Ostracodos do Miocénico da Bacia do Tejo: Sistemática, Biostratigrafia, Paleoecologia, Paleogeografia e relações Mediterrâneo-Atlântico, Dissertação de Doutoramento, Universidade Nova de Lisboa  |   |

Fig. 1 - Example of an individual file concerning the species *Ruggieria (Ruggieria) micheliana*.

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