

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/361727488>

A BETA TAXONOMY APPROACH TO LATE JURASSIC AND EARLY CRETACEOUS DINOSAUR ASSEMBLAGES

Conference Paper · June 2022

CITATIONS

0

READS

13

10 authors, including:



André Saleiro

Universidade NOVA de Lisboa

3 PUBLICATIONS 2 CITATIONS

[SEE PROFILE](#)



Alexandre R. D. Guillaume

Universidade NOVA de Lisboa

18 PUBLICATIONS 14 CITATIONS

[SEE PROFILE](#)



Filippo Maria Rotatori

Universidade NOVA de Lisboa

13 PUBLICATIONS 12 CITATIONS

[SEE PROFILE](#)



Maria Rios

Spanish National Research Council

39 PUBLICATIONS 143 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Major factors controlling diversity of Cenozoic terrestrial mammals [View project](#)



Late Jurassic Vertebrates from Portugal [View project](#)



ABSTRACT BOOK



19th

EAVP

CONFERENCE 2022

Benevento / Pietraroja Italy

27.06 – 02.07.2022

Co-organised by and with the patronage of:



In collaboration with:



and supported by:



How to cite an abstract from this volume:

Yurac Diaz M., Salazar C., Meyer C.A., Suárez M.E, Belvedere M. 2022. The dinosaur ichnological record of northern Chile: a review and its potential development. In: Belvedere M., Mecozzi B., Amore O., Sardella R (eds.). Abstract book of the XIX Annual Conference of the European Association of Vertebrate Palaeontologists, Benevento/Pietraroja, Italy, 27th June-2nd July 2022. *PalaeoVertebrata*, Special Volume 1-2022, 224. Doi: 10.18563/pv.eavp2022

A BETA TAXONOMY APPROACH TO LATE JURASSIC AND EARLY CRETACEOUS DINOSAUR ASSEMBLAGES

A. Saleiro^{1,2*}, A.R.D. Guillaume^{1,2}, F.M. Rotatori^{1,2}, M. Ríos-Ibañez^{1,2}, D. Estraviz-López^{1,2}, S. Conti^{1,2,3}, R. Martino^{1,2}, E. Puértolas-Pascual^{1,2,4}, O. Mateus^{1,2}, M. Moreno-Azanza^{1,2,4}

¹ GEOBIOTEC, Department of Earth Sciences, NOVA School of Science and Technology, Universidade NOVA de Lisboa, Campus de Caparica, P-2829 516 Caparica, Portugal

² Museu da Lourinhã, Rua João Luis de Moura 95, 2530-158 Lourinhã, Portugal

³ Department of Aerospace Science and Technology, Politecnico di Milano, via La Masa 34, 20156 Milano, Italy

⁴ Grupo Aragosaurus-IUCA, Facultad de Ciencias, Universidad de Zaragoza, 50009 Zaragoza, Spain

*presenting author, ad.barros@campus.fct.unl.pt

Keywords: *Paleobiogeography, Mesozoic, Similarity index, Cluster analysis, Principal Coordinate Analysis*

Although dinosaurs achieved worldwide distribution during the Mesozoic Era, their biogeographic distribution patterns are subject of high debate. A major geological influence on dinosaur distribution is the progressive separation between Gondwanan and Laurasian landmasses, leading to a faunal segregation by mid/Late Cretaceous. To elucidate the *tempo* and *modo* of such segregation, we adopted a Beta Taxonomy approach by comparing the similarity of dinosaur occurrences of various geological formations around the globe. Jaccard, Dice, and Simpson similarity indices were employed for the following time-bins: Kimmeridgian-Tithonian, Berriasian-Valanginian, Barremian, and Aptian-Cenomanian. Based on each of these indices, we performed: 1) a set of cluster analyses (UPGMA, neighbor joining, K-means), 2) Principal Coordinate Analysis, and 3) Correspondence Analysis. Results derived from the Jaccard index presented the highest statistical support, appearing to be more robust when compared to the other two indices. Absence of faunal segregation between Laurasia/Gondwana was identified during Kimmeridgian-Tithonian interval, although we found evidence of Asiatic provincialism. This distribution remains unchanged during Berriasian-Valanginian, even though sampling bias in this interval partially affected our results. Similarly, Barremian sampling bias hampered the possibility to discriminate Laurasian and

Gondwanan faunas, despite having higher statistical support in our analyses than the other time-bins. Finally, the Aptian-Cenomanian interval presented a clear faunal segregation between Laurasia and Gondwana, suggesting that a major faunal re-organization occurred no later than the Barremian. Further investigation, using clade-specific historical biogeography techniques, is required to clarify whether dispersal or vicariance events shaped this faunistic re-arrangement.