***CHOIA*-LIKE IMPRESSIONS IN EDIACARAN ROCKS (ITAJAÍ BASIN, BRAZIL) –ECOSYSTEM ENGINEERS IN SHALLOW WATERS?** B. Becker-Kerber[1], A. L. Zucatti da Rosa[2] P. S. G. Paim [3] and M. L. A. F. Pacheco[4] Affiliation [1]Institute of Geosciences, University of São Paulo, SP, BR (bruno.becker92@gmail.com); [2]Centro de Pesquisa e Desenvolvimento Leopoldo Américo Miguêz de Mello, Superintendência de Pesquisa Exploração e Produção, Rio de Janeiro, RJ, BR (azucatti@gmail.com); [3]Universidade do Vale do Rio dos Sinos, Centro de Ciências Exatas e Tecnológicas, Área de Conhecimento e Aplicação de Geociências (ppaim@unisinos.br). [4]Department of Biololy, Federal University of Sao Carlos, Sorocaba, SP, BR (forancelli@ufscar.br),

Introduction: The Ediacaran (~630-551 Ma) comprises the fossil record of the dawn of animals and other macroscopically complex life forms. These evidences includes phosphatized embryos of early animals, molds and impressions of weird non-evolutionary related groups *(e.g* vendobionts), complex algae and protists, and the first biomineralizers (1). This is why Ediacaran geological unities are of great importance for understanding of unprecedent evolutionary moments in the history of Earth. Brazillian ediacaran units account for some of the most impactful open questions regarding origin and evolution of the biological diversity and ecossistem origins. A yet poorly studied fossil biota from Itajaí Basin (Ediacaran?), Santa Catarina state, has been yielded some intriguing issues that set this geological unit in a global context of knowledge of Ediacaran Biota.

Geologic context: Itajaí Basin is a volcano-sedimentary unit, 50 km in length and 25 km in width, occurring in NE of Santa Catarina state, southern Brazil. The stratigraphic framework is characterized by alluvial, deltaic and marine deposits divided in four sequence of facies and limited by regional unconformities. The age ca. 606±08 Ma. is restricted to Ediacaran Period by radiometric data performed in a felsic tuff

Fossil biota: Siliciclastic rocks of Itajaí Basin contains great evidences of biotic activities, including microbial induced sedimentary structures (MISS), ichnofossils (e.g. *Helminthoidichnites*) and typical discoidal impressions of Ediacara Biota. The intriguing evidence of impressions *Choia* from the Cambrian Period comprises a new ecological implication for Ediacaran. These impressions are circular to oval with rectilinear rays parting from the center of the structure. Some of these rays are shorter and compose an inner crown and the larger ones constitute an external crown. The diameter of these fossils ranges from 12 to 14 mm. Some of these fossils occurs with wrinkle marks and others MISS.

Implications: Cambrian fossils of *Choia* represents the fossilized bodies of demosponges. The presence of this group in Ediacaran rocks extends its evolutionary history to ca. 50-6o million years back to originally recorded. More importantly, these fossils can be some of the few evidences of Porifera in the Ediacaran Period. Erwin and Tweedt (2) argued the importance of sponges in the Ediacaran as ecosystem engineers that led to more ventilation of seawater and removal of organic matter from the water column. These ecosystem engineers could be one of the triggers of the drastic environmental changes, such as oxidation of marine waters and oscilations in the global carbon cycle, that occurred at that time, related to the subsequent Cambrian diversification of animal life. Additionally, the presence of *Choia*-like fossils associated with MISS in the Itajaí Basin indicates that these organisms lived in relatively shallow waters. Changes in the patterns of ventilation and removal of organic matter could have initiated in this environmental strata, leading changes in ocean geochemistry and maybe also at the displacement of photic zone.

References:

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