

OVERVIEW ABOUT THE LOWER PERMIAN INVERTEBRATE ICHNOLOGY OF THE OROBIC BASIN (NORTHERN ITALY)

NOTE SULL'ICNOLOGIA AD INVERTEBRATI DEL PERMIANO INFERIORE DEL BACINO OROBICO (ITALIA SETTENTRIONALE)

G. SANTI (1)

ABSTRACT

The following speculations about the actual knowledge of the Lower Permian invertebrate ichnofauna from the Orobic Basin (North Italy), are here advanced: a) imprints are typical of freshwater, b) a dominance of surface traces and not an infauna burrows, c) a low biodiversity, d) a lack of monospecificity, e) the ichnodiversity and the taxonomic composition suggest a continental-freshwater origin. The presence of *Medusina atava* (POHLIG, 1892), WALCOTT, 1898 in the upper part of the Collio Formation, as well as the some arthropod trails (*Dendroidichnites elegans* DEMATHIEU, GAND & TOUTIN-MORIN, 1992) in the lower unit or in the upper one of the same formation and the evident impoverishment of the vertebrate and invertebrate ichnoassociations, should be linked to a different accompanying factors as a climatic shift (toward dry conditions) in the upper portion of the Collio Formation and a rapid sedimentation rate that for a part of the fauna prevented the life-ideal habitat preservation.

RIASSUNTO

Sono proposte alcune considerazioni sulle attuali conoscenze dell'icnofauna ad invertebrati del Permiano inferiore del Bacino Orobico (Italia Settentrionale): a) le impronte sono tipicamente d'acqua dolce, b) una predominanza di tracce di superficie e non un'infauna di perforanti, c) una bassa biodiversità, d) una mancanza di monospecificità, e) l'icnodiversità e la composizione tassonomica suggeriscono un'origine continentale e d'acqua dolce. La presenza di *Medusina atava* (POHLIG, 1892), WALCOTT, 1898 nella parte superiore della Formazione di Collio e di alcune piste di artropodi (*Dendroidichnites elegans* DEMATHIEU, GAND & TOUTIN-MORIN, 1992) sia nell'unità inferiore, sia in quella superiore e l'evidente impoverimento delle icnoassociazioni a vertebrati ed invertebrati sarebbero collegati a differenti fattori come la variazione del clima (verso condizioni maggiormente secche) nella parte superiore della Formazione di Collio e ad una rapida sedimentazione che impediva la preservazione d'ambienti adatti alla vita per una parte della fauna.

KEY-WORDS: *INVERTEBRATE ICHNOFAUNA, OROBIC BASIN, LOWER PERMIAN, SOUTHALPINE.*

PAROLE CHIAVE: *ICNOFAUNA AD INVERTEBRATI, BACINO OROBICO, PERMIANO INFERIORE, SUDALPINO.*

1. INTRODUCTION AND STRATIGRAPHIC SETTING

At the end of the Hercynian orogenesis the Southalpine was characterised by a series of basins and structural highs as consequence of a pull-a-part tectonic activity (CASSINIS & PEROTTI, 1994; PEROTTI, 1999) (Fig. 1). The most important were the Orobic and the Trompia Basins, this last placed easternmost compared former (Brescian Prealps zone), also if other troughs of less dimensions (Tregiovo and Tione Basins) placed east to the Adige River, are meaningful for their particular ichnofauna (CONTI *et al.*, 1997). In the Orobic Basin the Permian sedimentation follows a similar depositional trend to the one of the Trompia Valley and, it is subdivided in two tectono-sedimentary cycles. The first referred to the ?Upper Carboniferous-Lower Permian (ITALIAN IGCP GROUP, 1986; CASSINIS *et al.*, 2000, 2002), is defined by the alluvial-lacustrine sediments of the Basal Conglomerate (cropping out rarely), of the Collio Formation and of the Ponteranica Conglomerate (JADOUL *et al.*, 2000; GIANOTTI *et al.*, 2002). This first cycle unconformable lays on the crystalline basement and, across again another regional angular unconformity, proceeds to the second featured by the Verrucano Lombardo Formation (a red-wine alluvial-fan mainly conglomeratic lithosome) (Fig. 2).

On the paleontological base the second cycle is aged to the Upper Permian (BROGLIO LORIGA *et al.*, 1988; MASSARI *et al.*, 1988, 1994; KOZUR, 1989) although MASSARI & NERI (1994) make it continue in the Lower Anisian. The gap length between the first and second cycles is in discussion again, a hiatus that could be placed between the Lower and Upper Permian or at the base of this last (CASSINIS *et al.*, 2000) and that in the HARLAND *et al.* (1990), ODIN & ODIN (1990),

(1) Dipartimento di Scienze della Terra, via Ferrata, 1 - 27100 Pavia (Italy)
gsanti@unipv.it