ORIGIN AND EVOLUTION OF THE EARLY LAND PLANTS IN ARGENTINA AND SOUTH AMERICA THROUGH THE PALYNOLOGICAL RECORD

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The worldwide first evidence of land plants comes from the Central Andean Basin (CAB) in northwestern Argentina, where a diverse cryptospore assemblage composed of five genera pushes backward the beginning of the colonization of continents until *c.* 471-473 Ma. This finding in Dapingian (early Middle Ordovician) rocks of the CAB confirms the first appearance of land plants in the Gondwana palaeocontinent. Upwards, in the same locality, low-diverse and commonly not well-preserved cryptospores were found in Darriwilian and Hirnantian rocks. The non-continued cryptospore record could be related to the Ordovician foreland basin and particularly to the marine marginal deposits with frequent sea level changes. However, in the Precordillera Basin, scarce and low-diversified cryptospores, mainly represented by naked tetrads, have been found in the Sandbian and Katian. It should be noted that these deposits correspond to a tectonically complex palaeoenvironment, related to the accretion of the Precordillera terrane to the western Gondwana margin during the Middle-Late Ordovician. The CAB latest Ordovician deposits, related to the Hirnantian glaciation, yielded one of the most abundant and diversified Ordovician cryptospore assemblages worldwide. To date, palynological data from other Ordovician basins of South America are sparse, and there are no records of land-derived palynomorphs outside Argentina. The oldest record of trilete spores in South America comes from the Hirnatian glacial deposits of the CAB and is represented by the *Ambitisporites avitus- dilutus* Morphon. Surprisingly, no trilete spores were found in the Lower Silurian (Llandovery) of Argentina, neither in the CAB nor in the Precordillera. Meanwhile, the *Ambitisporites avitus- dilutus* Morphon first appears in Paraguay, in the late Aeronian of the Parana Basin and the *Archaezonotriletes chulus- nanus* Morphon in Brazil, in the Telychian of the Parnaiba Basin. In the Wenlock of the Precordillera some taxa such as *Archaezonotriletes chulus- nanus* Morphon, *Retusotriletes* sp. and *Emphanisporites* sp. have been

recognized while there are not other records of land-derived palynomorphs from the Wenlock of South America. The Late Silurian was a period when the richness and diversity of trilete spore assemblages significantly increased, particularly in the Argentinian Precordillera and the Brazilian Amazon Basin. Among the South American trilete spores, taxa considered as biostratigraphic markers for the Late Silurian- Early Devonian, allow correlation with biozones established for Euramerica, Gondwana and Peri-Gondwanan terranes. Similarities between terrestrial palynomorphs from South America and those from other palaeocontinents and palaeolatitudes, suggest a cosmopolitan distribution for some species of the Late Silurian flora.