

### A new Devonian flora in Argentina: palaeobotanical and stratigraphic implications.

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Upper Devonian sedimentary rocks have not, up to now, been reliably recognized cropping out in Argentina. The single units considered as most probably recording the Devonian-Carboniferous transition are comprised within the La Punilla Formation, which integrates the main body of the Sierra de La Punilla, in the southwestern area of the La Rioja Province, in central-west Argentina. In this formation, two stratigraphic units were identified: a sandy lower member considered as Middle Devonian in age on basis of the presence of *Malanzania antiqua*, and an upper heterolithic member of probable Mississippian age based on records of *Frenguelli eximia*. The presence of Upper Devonian levels, was inferred there considering the continuity of the section, but without direct paleontological evidences.

Recently a siliciclastic succession, was surveyed in the southernmost area of the Sierra de Las Minitas, a set of low ranges exhibiting stratigraphic and structurally complex settings, considered to be the northernmost continuation of the Sierra de la Punilla. One section of the Sierra de las Minitas (corresponding to the poorly known Jagüel Formation) is particularly interesting because it includes glacial diamictites deposits of discussed Devonian/Carboniferous age. Although radiometric ages of igneous bodies seemed indicate Upper Devonian-Lower Mississippian ages in nearby sections, palynological contents from this locality indicated a Middle Devonian age for the glacial deposits. The section is composed of pebbled dark mudstones at the base, a thick bed of (ca.70 m) diamictites above overlaid by an heterolithic interval (alternating sandstones, mudstones and shales) with brachiopod and bivalves coquinas and scarce plants, a thick sandy interval. Towards the top, another transgressive-regressive cycle with faunal records was recognised.

An interesting and surprisingly diversified plant assemblage was discovered in the thick sandy interval. Moderately diverse, it is mainly composed of axis of indeterminate affinities together with vegetative Lycophyte stems, dispersed pinnules and fertile organs.

This assemblage does not fit within the previously recognized Devonian and Lower Carboniferous biostratigraphic scheme of Argentina. None of the guide fossil plants of these two periods were recognized. However a comparison with other coeval localities outside of Argentina allows us to hypothesize an Upper Devonian age at least for these deposits. Thus, this would represent the first direct evidence of cropping Upper Devonian rocks in Argentina with fossiliferous records. This evidence suggests a linkage between the diamictite and the Gondwana Upper Devonian glacial event. Hence, palynological material indicating a Middle Devonian age for this diamictite should better be interpreted as reworked on the bases of these new evidences.