

ABSTRACT

Plant megafossils and microfossils are reported from the Permo-Triassic exposures in Jordan. Two new species of *Dicroidium*, *D. irnensis* and *D. jordanensis*, are described from the Um Irna Formation (Upper Permian) of the Dead Sea region, Jordan. The plant remains are preserved as compressions with excellent cuticles. These are the earliest unequivocal records of *Dicroidium*, a genus that is typical for the Triassic of Gondwana. It is also the northernmost occurrence of this genus that apparently originated during the Late Permian in the palaeotropics. Middle and Late Permian floras from the Arabian Peninsula and adjacent regions show a remarkable mixture of elements from different floral provinces. The climatic amelioration in the Gondwana region during the Early Triassic probably enabled *Dicroidium* to migrate southwards and finally colonise the entire Gondwana region. *Dicroidium* is one of the very few megaplants genera that was not affected by the biotic crisis at the Permian-Triassic transition, the largest Phanerozoic extinction event.

Charcoalified wood from the lower part of the Late Permian Um Irna Formation of Jordan is described. This charcoal represents the first evidence of palaeo-wildfire during the Late Permian in Northern Gondwana. The source locality at the northeastern rim of the Dead Sea has yielded abundant gymnosperm charcoal. Taxonomically most remains are identified as *Dadoxylon*-type gymnosperm wood. However, one woody specimen exhibits features that suggest a taxonomic relationship to the *Corytospermales*, a group otherwise represented at this locality by compressed fronds assigned to the genus *Dicroidium*. The occurrence of charcoal in the Um Irna Formation is appropriate to palaeoclimatic interpretations of this formation that suggest a tropical climate with alternating wet and dry seasons.

The Permian-Triassic succession is not continuously exposed. Therefore, the results of the palynological analysis will be compared with other Permian-Triassic zonation elsewhere. Based on the analysis of 98 palynological samples, five assemblage zones were recognized. These zones are in ascending stratigraphic order:

- *Lueckisporites virkkiae* Zone (Late Permian)
- *Endosporites papillatus-Verhachium* spp. Zone (Smithian/early Olenekian; Scythian)
- *Aratrisporites saturnii* Zone (late Pelsonian-Illyrian ; late Anisian)
- *Echinosporites iliacooides-Eucommiidites microgranulatus* Zone (Langobardian; late Ladinian)
- *Patinasporites densus* Zone (late Cordevolian-Julian; late early Carnian-middle Carnian)