Recently, high resolution (HR) pollen analysis has been performed in some Neogene basins. The present report provides data obtained by HR palynological studies on the Late Miocene sediments from two basins (Gotse-Delchev and Staniantsi Basins) in West Bulgaria.

The Staniantsi Basin is situated in West Bulgaria (Fig. 1), at the state border with Serbia. It is located within an NW–SE trending intramountain depression. The lower part of the Neogene sequence is an alternation of autochthonous brown coal and marl, which displays small-scale sedimentary cycles. The upper part of the sequence is characterized by alternating dark to light grey clays and calcareous silts. According to the mammal fauna and palaeomagnetic data (Utescher et al., 2009), the age of the sediments corresponds to the Upper Maeotian to Pontian. For the purpose of HR pollen analysis 78 samples were collected from three cycles (HRI’s) at a sample rate of 0.05 m.

The Gotse-Delchev Basin (Fig. 1) is situated in the valley of the Mesta River (Southwest Bulgaria). The bottom of the basin is lined by pre-Neogene rocks, and it is filled in by sediments of Neogene age. The materials under study originate from coal-bearing sediments of Baldevo Formation exposed in open pit mine Kanina. The exposed sequence comprises a basal unit with browncoal-clay cycles (app. 4.2 m) representing a swamp facies, and clayey/siliciclastic cover layers partly representing a lacustrine facies. A total of 26 specimens sampled at 0.05 m were palynologically analysed from a high resolution interval (HRI) in the browncoal horizon. Fossil mammals and floristic remains indicate an Early to Middle Pontian age for the sediments of the Baldevo Formation (Vatsev, Petkova, 1996).

The Staniantsi high resolution sections display short-term cyclic pattern of vegetation and climate change. The cycles are expressed by alternations of brown coal and marl/shell beds and show cyclic change in peat-forming vegetation related to oscillations of the groundwater level. These changes are related to alternation of wetter/warmer and drier/cooler climate phases, and orbital precession is probable triggering mechanism of the cyclisity (Utescher et al., 2009).

High resolution pollen analysis of the coal seam in Kanina open cast displays similar pattern of vegetation and climate change. The cycles are expressed by alternations of brown coal and marl/shell beds and show cyclic change in peat-forming vegetation related to oscillations of the groundwater level. These changes are related to alternation of wetter/warmer and drier/cooler climate phases, and orbital precession is probable triggering mechanism of the cyclisity (Utescher et al., 2009).
dynamics. The analyzed section shows the affinity of the Polypodiaceae/Thelypteridaceae communities to phases with peat forming, while Osmunda communities dominate the phases with clay sedimentation.

In both basins ferns were an important component of the peat-forming vegetation (Ivanov et al., 2010), while outside the mire, wetland vegetation consisting of pioneers and a mixed mesophytic forest with evergreen shrubs existed. The duration of the cycles is estimated as corresponding to the precession cyclicity (period of 21–23 ka).

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