In the Tata freshwater limestone (and also in the Budakalász freshwater limestone),[11] Characea algae and Ostracods occur[12] indicating shallow-lake environment. The vertebrata fauna of the Tata freshwater limestone was described by Kormos and Kretzoi[13] while at Budakalász Jánossy[14] and at the Buda-Vár-hegy Mottl and Krolopp et al.[15] made similar investigations. During the initial period of the lake evolution the climate was warm and humid, but later it changed gradually to a cold, continental desert at the termination of the lake evolution.[16] Krolopp and Korpás[17] also have drawn a similar conclusion by studying the Buda-Vár-hegy freshwater limestone. Using modern analogies and studying the fossil flora, Pavletic[18] postulated a temperate (20-25 °C) deposition environment for the Tata travertine.

Sampling and analytical methods

Eighteen samples were collected from one vertical section for petrographic evaluation (Fig. 3). Additionally we sampled the most typical carbonate formes (7 samples.; Fig. 6). Eight samples were taken from one undetermined form (Fig. 7) which can be either carbonate vent or cascade.

Petrographic and microfacies analyses on thin sections were performed at the Hungarian Academy of Sciences, Institute for Geochemical Research. Detailed XRD studies were conducted on bulk samples and on insoluble residue collected in the vertical section and on samples collected from the palaeosoil horizon. The analyses and the interpretation of the results was performed by P. Kovács-Pálffy and I. Baráth (MAFI). The dissolution of the limestones was made with acetic acid (30%) at the Geological Institute of Hungary by I. Partényi and F. Hózer. The detailed description of the method is given in the paper of Kovács-Pálffy and Földvári.[19]

Paleomagnetic measurements from one vertical section (including samples from the palaeosoil horizon) were also used to determine the timing of travertine formation. The analyses and the interpretation of the results was performed by M. Lantos at the Geological Institute of Hungary. The detailed description of the method is given in the paper of Lantos.[20]

[11] Kele et al. 2003, 161 – 175.

[12] Diebel–Pietzeniuk 1990, 145–162.

[13] Kormos 1912.; Kretzoi 1964, 105–126.

[14] Jánossy 1961, 63–74.

[15] Mottl 1943, 285–292.; Krolopp et al. 1976, 17–78.

[16] Kretzoi 1964, 105–126.; Korpás et al. 2003, 81–105.

[17] Krolopp 1961, 146.; Krolopp et al. 1976, 17–78.; Korpás et al. 2003, 81–105.; 2004.

[18] Pavletic 1964, 47–49.

[19] Kovács-Pálffy–Földvári 2004.

[20] Lantos et al. 2004, 227–236.