



Influence of polluted air on chemical composition of elements from forest ecosystems from the region of Srednogorie (Bulgaria)

Maria Sokolovska (1), Miglena Zhiyanski (1), Evguenia Slavtcheva (2), Núria Roca (3), and Jaume Bech (3)

(1) Forest Research Institute, Sofia, Bulgaria, (2) Ministry of Agriculture and Food, State Fund Agriculture, Sofia, Bulgaria, (3) University of Barcelona, Laboratory of Soil Science, Faculty of Biology, Plant Biology, Barcelona, Spain
(jaumebechborras@gmail.com)

Studied region is situated on the south steep slopes of Central Balkan Mountains with south-west and south-east aspects. In the lower parts sediments parent materials are presented sandstones, shales, limestones and conglomerates. Over 800 m the southern Bulgarian granites, gneiss and crystalline shale are distributed and the formed soils could be referred as Eutric-Dystric Cambisols. In the middle forest zone of the area the pure and mixed beech forest (*Fagus sylvatica* L.) are distributed. The most distributed soil types in studied region are Dystric Cambisols. Soil acidity slightly varies pH is between 4.7 and 5.0 while more acid are the superficial 0-5 cm of soils. The mean values of organic carbon content are higher for the upper soil layer (61.7 g/kg). The heavy metals contents (Cu, Pb and Zn) in the superficial layers are little higher compared with the determined limit values for soils. The content of Zn increased toward deeper layers of soil profile, while the content of Cu decreased slowly. For the Pb small variation in the profile distribution are observed. Concerning the heavy metals content in forest floor layers higher values are determined for Cu and Pb in Aof and Aoh, 540 mg/kg and 903 mg/kg for Cu and 100 mg/kg and 168 mg/kg for Pb respectively. These high values of Cu are indicator for anthropogenic influence in the region, provoked by the activities of copper production enterprise CPE Georgi Damyanov in town of Srednogorie. The high values for heavy metals content in forest floor, the significant soil organic matter content and lower pH values supposed a higher anthropogenic impact on brown forest soils in studied region.