

14 structures of polycyclic aromatic hydrocarbons (PAHs) were identified in the organogenic soil horizon and plants of the south shrub tundra belt, at a background plot and at a coal mine. The polyarenes in soils and plants were mainly represented by light structures. On the background and polluted areas, mosses of *Pleurozium schreberi*, *Polytrichum commune* and grasses of *Deschampsia caespitosa*, *Festuca ovina* contained the highest PAH amounts. PAH bioaccumulation in plants is mainly dependent on their physiological features. 4 plant groups with different PAH bioaccumulation capabilities were identified on the basis of the calculated biological absorption coefficient. The toxicological activity of polyarenes for both soils and plants at the background and polluted areas was determined by heavy PAHs. The highest values of toxicological activity were observed for mosses and grassy plants whilst the lowest values were for shrubs. PAHs at the plots under study are mainly of petrogenic origin.