Abstract

Nitroaromatic compounds are mutagenic and carcinogenic substances present in all environmental compartments. Polycyclic aromatic hydrocarbons react with nitrogen oxides to form nitroaromatics under the conditions that might be expected in polluted air and in combustion processes (fossil fuel combustion, waste heat recovery, metal processing, etc.). Most of nitroaromatic compounds are potent mutagens in bacterial and mammalian systems. They are also carcinogens causing cancer, primarily in the liver, lungs and mammary glands. Nitrobenzanthrones (NBA) are nitroaromatic compounds which were recently found in environmental compartments, especially in the air.
3-Nitrobenzanthrone (3-NBA, 3-nitro-7H-benz [de] anthracene-7-one) is one of the polycyclic aromatic nitro compounds with high toxic effects. 3-NBA is present in environmental pollution, in diesel exhaust and was also detected in soil and in rain water.
Bachelor's thesis describes the metabolism of this substance and it also studies its mutagenic and carcinogenic effects. This work also compares the mutagenic and carcinogenic effects of 3-NBA and its derivative, isomer 2-nitrobenzanthrone (2-NBA, 2-nitro-7H-benz [de] anthracene-7-one), which also occurs as a pollutant in air. (In Czech)