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S10. POLYCYCLIC AROMATIC HYDROCARBONS AND THEIR TOXIC EFFECTS

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Polycyclic Aromatic Hydrocarbons (PAHs) are aromatic hydrocarbons with two or more fused benzene rings. They are ubiquitous and persistent chemicals that occur naturally in coal, crude oil and gasoline. The widespread occurrence of PAHs is largely due to their formation and release in all processes of incomplete combustion of organic materials. The last century of industrial development caused a significant increase of PAH concentrations in the natural environment. The general public may be exposed to PAHs found in soil/dust, air, water, food or household products. In addition, high exposure to PAH mixtures have been reported in several industries and occupations, including aluminum production, coal gasification, coke production, iron and steel foundries, diesel engine exhaust, coal tar and related products. Workers of these industries are continually exposed to different concentrations of PAH mixtures. These toxicants generate considerable interest, because PAHs are ubiquitous, some of them are highly carcinogenic in laboratory animals and have been implicated in breast, lung, and colon cancers in humans. Nonetheless, endogenous metabolic reactions of PAHs have an important role for occurrence of these toxic effects. The most common mechanism of carcinogenesis induced by PAHs is DNA damage through the formation of adducts. Alternatively, the presence of reactive oxidative species can also result with DNA damage. Benzo(a)pirene is the best known PAHs compound and used as a biomarker of exposure to PAHs. In conclusion, there will be made we will make a general assessment about PAHs in the lighting of the current knowledge.