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Cultured keratinocytes obtained from human hair follicles might be a useful tool to study mutagenicity in human epithelial cells. A transient hypocalcemia is observed in fish the first days after Cd-exposure, which is indicative of a disturbed Ca2+ transport in intracellular stores.

We studied the immunolocalization of cytochrome P-450 in fish gills (trout, tilapia) but also in intestine and procarcinogens. The isocyanates, particularly HDI, showed a large toxic effect on the Salmonella bacteria. Exposure to isocyanates is known to cause pulmonary and skin irritation as well as immunologic sensitization of the respiratory tract. In contrast to these well studied toxic effects, little is known about the mutagenic and possible carcinogenic effects of the isocyanates. We present a study of the mutagenic action to Salmonella typhimurium of some isocyanates and their amine analogues. The synthetic food antioxidant 2(3')-tert-butyl-4-hydroxyanisole (BHA) is carcinogenic in the forestomach of rats, hamsters and probably mice. Sequential changes are dose-dependent and involve lesions, hyperplasia, papillomas and carcinomas, the development of which is accompanied by an increase in forestomach labelling index (L.I.). In the present study, subcellular markers of cell kinetics were assessed in the rat gastro-intestinal tract after short-term consumption of BHA. Groups of five male Wistar rats (306±17g) were fed a diet containing 2% BHA or basal diet (control group) for two weeks. Subsequently, rats were injected i.p. with 25 mg/kg 5-bromodeoxyuridine (BrdU), a thymidine analogue, and killed after four hours. The gastro-intestinal tract was removed, opened longitudinally, cleaned and fixed in 7% ethanol. After pepsin digestion of random samples of the fixed tissues, labelled cell nuclei were visualized by means of a monoclonal anti-BrdU antibody technique. Cell kinetic parameters were determined by bivariate BrdU/DNA analysis using flow cytometry.

We present a study of the mutagenic action to Salmonella typhimurium of some isocyanates and their amine analogues. The synthetic food antioxidant 2(3')-tert-butyl-4-hydroxyanisole (BHA) is carcinogenic in the forestomach of rats, hamsters and probably mice. Sequential changes are dose-dependent and involve lesions, hyperplasia, papillomas and carcinomas, the development of which is accompanied by an increase in forestomach labelling index (L.I.). In the present study, subcellular markers of cell kinetics were assessed in the rat gastro-intestinal tract after short-term consumption of BHA. Groups of five male Wistar rats (306±17g) were fed a diet containing 2% BHA or basal diet (control group) for two weeks. Subsequently, rats were injected i.p. with 25 mg/kg 5-bromodeoxyuridine (BrdU), a thymidine analogue, and killed after four hours. The gastro-intestinal tract was removed, opened longitudinally, cleaned and fixed in 7% ethanol. After pepsin digestion of random samples of the fixed tissues, labelled cell nuclei were visualized by means of a monoclonal anti-BrdU antibody technique. Cell kinetic parameters were determined by bivariate BrdU/DNA analysis using flow cytometry. Forestomach L.I. and potential doubling time (Tpot) in random samples were 10.0±3.4% and 2.7±0.8 days for the control group and 20.7±3.9% and 1.2±0.2 days for the group fed 2% BHA respectively (mean ± SD; p<0.001). Mean transit time through the S-phase was not altered. Glandular stomach, ileum, caecum and colon were not affected. Thus, we confirm proliferative effects of BHA on rat forestomach as indicated by an increase in L.I. and additionally report a decrease in Tpot following short-term dietary BHA administration.

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