Disturbances in embryonic growth were studied in 233 foetuses harvested on day 14.5 of gestation, after the administration of various doses of 5 Fluoro-2' deoxyuridine (FUdR) to pregnant mice on day 11.0 of gestation. Measurements of crown-rump length (CRL) and mean wet body weights showed a significant retardation of embryonic growth ($p < 0.001$), following doses of 30, 80 and 100 mg FUdR per kg maternal body weight. Compared to the controls, whole FUdR-treated embryos that had been macerated, cleared and double stained with alcian blue 8GX plus alizarin red S for skeletal anlage, showed that ossification had not commenced in the vertebral bones of tail. All bones in the craniofacial region and limbs including the girdles, were smaller, while there were distortions of the long bones. The severity of the changes were dependent on the concentration of FUdR dose administered. Among the live FUdR-treated foetuses harvested, 95% had mesomelic limb defects. The incidence of delay or prevention of palatal processes elevation was 79%, 49%, 21% and 30% respectively for 0 mg (control), 30 mg, 80 mg and 100 mg FUdR doses. The results show that administration of a teratogenic agent (FUdR) causes retardation of growth which correlates with abnormalities of the secondary palate and limbs. It is proposed that the initial screening of potential teratogenic substances in food, such as preservatives or colourings, may be carried out by monitoring changes in secondary palate and limb development, including biometric growth parameters of an animal model.