

as measures of mutagenic effect is that their variability is high, as both numerator and denominator are contributory, and estimates of standard deviation, hence, are complex.

Preimplantation losses, early fetal deaths, sterility and semisterility constitute a spectrum of adverse genetic effects, of which early fetal deaths clearly afford the most convenient and quantitatively unequivocal parameter of mutagenicity.

Using these techniques, a wide range of chemicals to which man is exposed in the totality of the environment, including pesticides, food additives, drugs, air and water pollutants, have been tested for mutagenicity in mice (10, 13). Additionally, detailed dose-response studies with the aziridine alkylating agents, TEPA and METEPA, which have been used as chemosterilant pesticides, have revealed mutagenic thresholds in the region of 0.04 mg./kg. and 1.4 mg./kg., respectively, following acute single parenteral administration in mice.

These techniques are also ideally suited for the study of synergistic or antagonistic effects on mutagenesis; caffeine, for example, has been shown not to induce dominant lethal mutations nor to synergize the mutagenic effects of X-rays or of alkylating agents (10).

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