

TABLE 4.—*Maximum percent mutations reported for a series of mutagens tested on several organisms (57)*

Agents	Mutations at several loci		Mutations at specific loci	
	Barley (<i>Hordeum</i>) Chlorophyll mutants mutated spikes ¹	<i>Drosophila</i> sex-linked rec. lethals ²	<i>Neurospora</i> ad rever- sions ³	<i>Schizo. pombe</i> arg rever- sions ⁴
Gamma rays.....	17			
Diethyl sulfate (dES).....	43		18	0.1200
Methyl methanesulfonate (MMS).....	33	11.6		0.0220
Ethyl methanesulfonate (EMS).....	57	39.0	17	0.0910
Chloroethyl methanesulfonate.....			51	9.9220
n-Propyl methanesulfonate (nPMS).....	26			
Isopropyl methanesulfonate (isoPMS).....	20			
n-Butyl methanesulfonate (nBMS).....	28	.8		
Ethyl ethanesulfonate (EES).....	25			
Nitrogen mustards:				
2-chlorotriethylamine.....	15			0.0009
chlorodimethylamine.....			1.7	
Ethyleneimine.....	28		16	
Diepoxybutane.....			85	0.0160
Glycidol.....	22		34	0.0240
Ethylene oxide.....	13		17	

¹ After compilation by NILAN et al. (76, 77).² Data from FAHMY and FAHMY (27).³ After compilation by WESTERGAARD (109).⁴ Data from HESLOT (35).

Drosophila.—While there are a considerable number of mutation tests that are capable of being carried out on *Drosophila* (1), we refer here primarily to those which in general are simple, rapid and unambiguous in interpretation. They are also reasonably inexpensive to perform. The types of tests described below may be run independently, or two or more tests may be carried out on the same group of treated individuals by using special stocks. Detailed procedures will not be presented; however, many of the tests are discussed in general genetics texts or in references listed below (2).

Probably the most widely used experimental procedure is the sex-linked recessive lethal test. Either sex may be treated and mutation frequencies from successive germ cell stages may be obtained. The test requires that two generations be bred; however, chemical mutagens often produce delayed or mosaic effects and a third generation may be necessary. Large numbers of progeny may be tested and since