

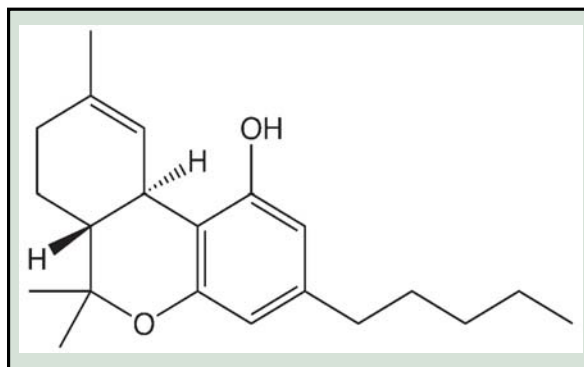
TETRAHYDROCANNABINOLS

As discussed in the main narrative, the Army's interest in THC type compounds was ambivalent. In the mid-1950s, pilot studies with EA 1476 (red oil)⁸⁷ showed it to be potent, but otherwise unacceptable for military use.

EA 2233, a mixture of 8 stereoisomers of THC (with two methyl groups attached to the heptyl side chain), showed higher potency than THC itself (Fig. 99) in the range of 10-60 mcg/kg by the oral route.⁸⁸ Later, after they were separated by Parker Ferguson at Edgewood Arsenal, Dr. Sidell was later able to test two of the individual isomers of EA 2233 but found them to cause both orthostatic hypotension and minimal effects on performance at the very low doses used.⁸⁹

A pilot study with EA 2233, using three performance measures, indicated minimal effects at the doses administered (Fig. 98). Two subjects were tested at each dose level. Only one volunteer, at 60mcg/kg, reported distinct cannabis-like effects. He described a pleasant state in which he was unconcerned with events in the environment and doubted that he would care if a fire broke out.

EA 2233 did not seem to have sufficient potency to be of military interest, since an oral dose of 60mcg/kg caused a maximum decline of only 40% (at most) in number facility performance. Hollister later published a study which showed that the oral effects of ordinary THC were only about one-third that of THC smoked as marijuana.⁹⁰ This



Structure of tetrahydrocannabinol

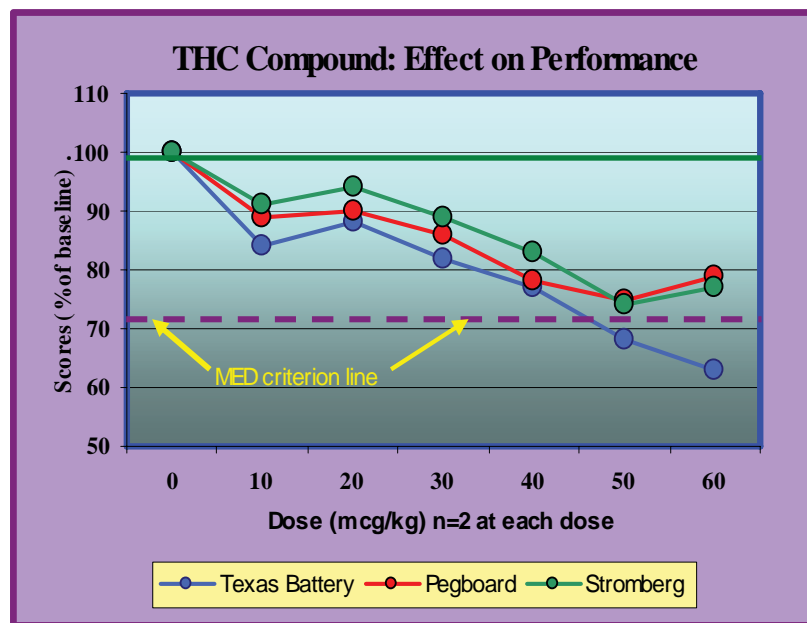


Fig. 100 EA 2233 (THC): Mixture of 8 isomers produces similar dose-related effects on 3 test scores

suggests that effectiveness of EA 2233 in an aerosol might be much greater than by the oral route. In our 1981 study of the effects of smoked marijuana on driving performance,^{91, 92, 93} the estimated absorbed dose of THC averaged about 40 mcg/kg, and produced only minimal effects on tests of cognitive performance, such as the BITE (Brief Interval Time Estimation) task, essentially the same as the VITA used at Edgewood. We found a maximum decline of only about 10-20% (Fig.100). This corresponds roughly to the decline in NF produced by 30-40 mcg/kg of oral EA 2233. It would seem that the mixture of all 8 isomers of EA 2233 is not appreciably more effective than ordinary THC, but one or more of the individual isomers may account for most of the performance decrements.

Problems with hypotensive blood pressure halted single isomer testing in 1965.