Medical, A2SC

May 14, 1973 W. B. Papageorge - B2NA

Sources of Chick Edema Factor/Aroclors

E. P. Wheeler

The Toxicon data based was searched to determine if there were published reports indicating chick edema factor activity in either hexachlorobenzene (CAS No. 118741) or hexachlorophene (CAS No. 70304). None of the 52 hexachlorobenzene or 142 hexachlorophene references referred to chick edema factor assays.

The most potent "chick edema factor"positive agents are:
trichlorodibenzo-p-dioxin
tetrachloro dibenzo-p-dioxin
hexachloro dibenzo-p-dioxin
tetrachloro dibenzo furan
pentachloro dibenzo furan. The trace presence (~10 ppm) of these substances in polychlorinated biphenyls, and chlorinated phenols have been found to be responsible for the observed chick edema factor activity of toxic fats. Samples of PCB and of pentachlorophenol that were free of chlorodioxin or chlorofuran contamination failed to cause chick edema.

Pentachloronaphthalene and hexachloronaphthalene have also been reported to possess chick edema factor activity. Analysis for dioxin or furan content were not conducted on the commercial material (HALOWAX 1014) used, thus it is impossible to establish the absolute causative agent. These same chlorinated naphthalenes cause hyperkeratosis (X-disease) in cattle, again the absolute effective moiety has not been clearly defined.

Paul L. Wright

/bks

DSW 282910

STLCOPCB4064239