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Analytical Division
Research Directorate

Analysis/Evaluation of Leaf Sample

A shipment designated 10027A(5), received by the Analytical Division 3 Mar 84 from FSTC, contained 19 subpackages. Eight of these samples have been previously reported. One container identified with TH840223-5DL was designated 10027A(5)-4. It consisted of a few yellow spotted leaves containerized in a plastic bag. Information indicated it was collected from an area after a reported chemical attack.

A vapor sample withdrawn from within the plastic bag was subjected to analysis by gas chromatography/mass spectrometry (GC/MS). Three portions of the leaves were extracted with chloroform. Three other portions of the leaves were extracted with 1:1 methanol:water. The solvent soluble materials were analyzed by GC/MS, ion chromatography (IC), thin layer chromatography (TLC) and infrared spectrometry (IR).

GC/MS analysis of the vapors associated with the leaves did not give a definitive spectra. The GC/MS spectra of one solvent extract identified the presence of a terpene, the sesquiterpene alcohol nerolidol and two unidentified compounds. The other solvent extracts did not yield definitive GC/MS spectra. No ions of interest were separated or identified by IC. TLC separated components supportive of aromatic or unsaturated compounds and trichothecenes. MS of these areas identified only phthalates. IR of the same areas identified aliphatic hydrocarbons and a carbonyl. IR of the solvent extracts identified high concentrations of aliphatic hydrocarbons, a possible unsaturate and traces of carbonyl. Derivatization with negative ion chemical ionization detection for trichothecenes tentatively identified the presence of neosolaniol at picogram levels in one solvent extract. The other extracts were negative for trichothecenes. The detection of picogram levels of trichothecenes could not be confirmed by other laboratories, due to their minimum detection level being higher than CRDEC's. Nuclear Magnetic Resonance (NMR) of the same extract was negative for HD, G and V agents and the epoxide structure normally detected in trichothecenes. It did detect a mixture of alkyl hydrocarbon with methoxy (OCH₂) groups. Information received from SEA indicated T-2 toxin had been identified by a near-field laboratory as a component in another sample taken at the same time and place.

CONCLUSION:

No evidence of any known CW agent or agent degradation product was detected. The detection of the trichothecene neosolaniol was of interest, however, the inability of other laboratories to confirm the CRDEC findings, and CRDEC's not confirming the T-2 reportedly detected by SEA laboratories on other portion of the sample clouds the significance of the findings. The other chemical substructures identified could be components of a toxin or related compound, but also could be associated with an innocuous material.

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Declassify: OADR