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Detection and Identification of Triacontanol a plant growth stimulator in autopsy material: A case report

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Abstract

The Triacontanol is a plant growth stimulator used in field crops. The easy availability of Triacontanol is frequently encountered in forensic cases.

The aim of present paper is to describe symptoms, postmortem changes occur in a reported case of Triacontanol plant growth stimulator and detection and identification of plant growth stimulator in visceral material by T.L.C. method.

Key words: Triacontanol, Plant growth stimulator, Melissyl alcohol and 1- hydroxyl- triacontane.

Introduction

The Triacontanol is a plant growth stimulator used in field crops like rice etc, it is a saturated long chain alcohol. Triacontanol have a growth promoting activity when exogenously supplied to a number of plants. It remains present in plant cuticle waxes and bees wax as the palmitate. Chemically it is $C_{30}H_{62}O$.

$$CH_3(CH_2)_{28}CH_2OH$$
(I)

Brief study of the case

State FSL Sagar received a case of poisoning of a person aged 45 years from Triacontanol plant growth stimulator. He was admitted in the hospital on 05-07-03 at 7 a.m. due to consumption of Triacontanol and died on 05-07-03 at 1 p.m. The symptoms mentioned in the medical report are patient unconscious, froth was present in mouth, and pupils are pinpoint.

Post mortem findings

The patient was died on 05-07-03 at 1 pm. Post Mortem was conducted on next day. The autopsy surgeon has reported the following findings both eyes are opened, pupils are dilated, and froth coming out from nostril and mouth, all abdomen organs and mucosa are congested, with pungent smell. The cause of death is asphyxia and duration of death is 24 to 34 hours.

Extraction of Triacontanol from biological materials

About 50 g. viscera [(I) pieces of stomach and intestine with contents (II) pieces of liver, spleen, kidney and lungs said to be containing Triacontanol was taken. Material was cut into fine pieces

and minced carefully, 100 ml. of ether and 10 ml of rectified spirit was added. The contents were shaken several times in a separating funnel and solvent separated. The process repeated for several times and collected separately and passed through alumina (neutral) packed column. The purified sample is dried with anhydrous Sodium sulphate and used for further analysis.

Orthodianisidine reagent

0.623g. Of Orthodianisidine dissolved in 100 ml of absolute ethyl alcohol and filtered.

Thin layer chromatography

Standard glass TLC Plates were coated with slurry of silica gel g in water (1:2) to a thickness of 0.25 mm and activated at 110^0 c for one hour. The Microgram quantity of a commercial standard solution (1mg per ml in ethanol) of Triacontanol, and purified extracted visceral material were spotted on a plate. This plate was developed in pre saturated T.L.C. chamber using hexane and ether (9:1) as a solvent system. After the solvent was traveled upto10 cm, the plate was taken out from the chamber and air-dried. The plate was sprayed with spray reagent orthodianisidine solution, which developed brown coloured spots at 1.2, & 6.5cm.

Result & Discussion

The Thin layer chromatogram developed with the spray reagent gives Rf value of extracted samples corresponds with the commercial grade standard sample of Triacontanol at Rf-0.12, & 0.65 with brown colour spots.

Therefore this method can be used as routine identification of the Triacontanol plant growth stimulator.

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