

Efficiency and performance of certain formulations botanical pesticides against some insect pests

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The present investigation aimed to throw light on the emulsifiable concentration (EC) formulations of preparation of certain plant extracts in different organic solvents. The insecticidal activities of certain crude plant extracts and their prepared EC formulations on the larvae of the cotton leafworm, *S.littoralis* (Boisd) and *Culex pipiens* mosquitoes were also studied. Also, the TLC separation and bioassay evaluation against the mosquito larvae were also considered. At the end, the active TLC bands as shown from bioassay tests were subjected to GC-MS identification. The obtained results could be summarized in the following:

1. Preliminary bioassay tests showed the superior larvicidal activity of chloroform and ethanol extracts of *Withania somnifera* plant against 3rd instar *Culex pipiens* compared with the other extracts of *Pinus halepensis* and *Carpobrotus edulis*. Chloroform extract proved much more efficiency than ethanol extract.
2. Data indicate the great insecticidal activities of prepared EC formulation of *Withania somnifera* plant in chloroform or ethanol against 3rd instar larvae of *C.pipiens* compared with their crude extracts in the same organic solvents.
3. The obtained results indicated the higher insecticidal activities of chloroform crude extract of *W.somnifera* against both 2nd and 4th instar larvae of the cotton leafworm than ethanol crude extract.
4. Data indicated the superior larvicidal activity of EC formulation prepared from chloroform extract against cotton leafworm larvae than the crude extract of the same solvent only. The LC₅₀'s were 93.8 and 1594.4 ppm (2nd instar) and 455.7 and 1973.1 ppm (4th instar) in case of EC and crude extracts, respectively. Extracts and EC formulation from chloroform proved more potencies on both instars of leafworm larvae than those from ethanol. Larvae of 2nd instar showed more susceptibility to the tested crude extracts and EC formulation.
5. Thin layer chromatography technique resulted in the separation of 13 bands with sequential R_F values from *W.somnifera* extract. Bands with R_F 's from ethanolic extract of 0.76, 0.80, 0.08, 0.04 and 0.24 showed satisfactory larvicidal activities against 3rd instar larvae of *C.pipiens*. Data also indicate that the band with R_F 0.83 of chloroform extract was the only one with larvicidal activity against 3rd instar larvae of *C.pipiens* (60.0% mortality).
6. GC/MS identification of the most active components of TLC separated bands of *W.somnifera* ethanol extracts and chloroform extracts showed the following compounds as library searched (D : database Willey 275.L.) (Figs. 12 to 27). Talbotine (GAS) SS TALBOTIN SS indolo [3,2,1-W pyrano [3,4-b] [1,5] naphthyridine-12 a (12 H) —carboxylic acid 9-e thylidene —5,6,7, 7a, 8, 8a, •8-Amino-3- (carbomethoxy) —1- methyl —5- (3,4,5- trimethoxyl phenyl) —1H-pyrimido [4,5-c1-1,2-diazepin —6- (7H) —one. •Methyl (23E) —3. beta. —acetoxy-12, 21-dioxo-23-phenylth-5. beta., 21E-cholan-24-oate SS Cholan-24- oic acid, acetyloxy) 12, 21-dioxo-2. •4-Dibenzothienyl —2- (4,4-dimethyl —2- oxazolin —2- yl) phenylmethanol SS 4-Dibenzothiophenemethanol, alpha, -[2-(4,5-dihydro-4, 4-dimethyl. •26, 27-Dinorergoata-5, 22-dien-3-ol, (3, beta, 22E) —(CAS) SS 24-NOR —CHOLESTA-5, 22 (TRANS) — DIEN —3, BETA —OL SS No rcholestadienol SS 26, 27. •t-Butyl 5-Iodo-4- (2-methoxycarbonyl ethyl) —3- methoxy-carbonylmethyl pyrrole-2- carboxylate SS 1H-Pyrrole-3- propanoic acid, 5- [(1,1-dimet)]. •Isocephalotaxinone. •N-(Methylsulfonyl)-O-(trimethylsilyl) hydroxylamine. •1-Methylspiro [5,5] unec-2-ene-4, 7-dione SS Spiro [5.5] u ndec-9-ene-1, 8-dione, 11-methyl-. •Thymol

acetate. • Alpha, -Tumerone. • Phenanthrene, tetradecahydro- (CAS) SS perhyDROPhenanthrene
SS TetradecahydroPhenanthrene. • 9,10—Anthracenedione, 1,8-bis (1,3- dihydro-1,3- dioxo (2h)
isoindol -2-yl). • DI-H-Agnosteryl Acetate SS Lanosta-7,9 (11)-dien-3- ol, acetate, (3,beta)- (CAS) SS
3-Beta, -Acetoxy-5- Alpha, -Lanosta-7,9 (11)-Diene S. • Gradirubrine (CAS) SS 9H-Azuleno [1, 2, 3-ij]
isoquinolin-9- one, 10-hydroxy-4, 5, 6-trimethoxy. • Dichlorofuroxan.