

MOLLUSCICIDAL TRIAL AGAINST LAND SNAIL (*HELIX ASPERSA* GASTROPODA, MOLLUSCA).

by

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Abstract. *Molluscicides Brestan 60%, Nogas 100% E.C. Bayluscid 70% W.P. and Sodium Chloride were used in 0.05%, 0.1%, 0.2% and 0% doses in a field trial against land snail, Helix aspersa attacking nursery plants. Baylucid gave 75% and 100% mortality in 0.05% and 0.1% concentrations, respectively, 72 hours after treatment, while Brestan gave 70% and 80% mortality in 0.1% and 0.2% concentrations as against a natural mortality of 23% to 33%. Nogas and Sodium Chloride were less effective.*

Introduction. Snails frequently damage flowers, vegetables and tree seedlings by nibbling here and there. Snails have also been reported as injurious to trees in citrus groves in U.S.A. In some localities hedges have been kept in a state of partial defoliation for years by snail feeding. In the past few years the occurrence of large populations of snails and slugs in the coniferous nurseries in hilly areas of Pakistan and agricultural fields and kitchen gardens in the plains and hills has brought them into prominence.

Review of literature. No work on the control of land snails and slugs with new molluscicides has been reported. Muraleedharan (1977) has, however, described better efficacy of Bayluscid over CuSO_4 and Sodium pentachlorophenate against fresh water snails, *Indoplanorbis exustus* in laboratory trials. Earlier Crowell (1968) described that Chlorinated hydrocarbons and organophosphatic pesticides had little or no toxicity against slugs and snails but carbamates exhibited outstanding activity against them. Banch (1968) conducted trials of 5, 2-dichloro-4-nitrosalicylanilide ethanolamine and showed some success as molluscicide and ovicide. Tarezynski and Szepelski (1969) found 5% CuSO_4 as an effective control agent against snails when aerially sprayed. Roth et al (1973) found Methyl bromide and other fumigants effective against the snails, *Helicella* sp. In the laboratory tests Spielman et al (1973) reported Endod a butanol extract of soap berry plant *Phytolacca dodecandra* (endod) as molluscicide.

Material and Method. Bayluscid 70% W.P., Nogas 100% E.C. Brestan 60% and NaCl were tried against land snail, *Helix aspersa* in 0.05%, 0.1% and 0.2% concentrations. The molluscicides were sprayed on the germinating seedlings of sarson (*Brassica campestris*) grown in IxIm plots under the shade of big eucalypts trees. The experiment was laid out in split plot design keeping 3 replications. NaCl being repellant for snails was applied on the boundaries of each plot in powder form to keep the snails sticking to these plots. Common garden snails, *Helix aspersa* were released on the sprayed plots ten in each plot.

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Results and Discussion. Percent mortality after 24, 48 and 72 hours was as follows for the different treatments:

Molluscicide	Dose %	% Mortality after		
		24 hours	48 hours	72 hours
Bayluscid	0.05	37	63	75
	0.1	63.33	99	100
	0.2	100	—	—
	Check	0	13	26
Nogas	0.05	27	27	28
	0.1	33	35	46
	0.2	40	50	55
	Check	13	20	25
Brestan	0.05	40	50	66
	0.1	43	55	70
	0.2	50	66	80
	Check	0	30	33
NaCl	0.05	20	30	37
	0.1	23	37	40
	0.2	33	42	45
	Check	13	16	23

Bayluscid proved to be the most effective chemical. Brestan in 0.2% dose caused 80% mortality in 72 hours. Nogas and NaCl were less effective.

The results are in conformity with those reported by Muraleedharan et al (1977). Bayluscid and Brestan were found phytotoxic to *Brassicca compestris* seedlings in 0.2% concentration. In order to confirm the phytotoxic effect on seedlings of forest trees these molluscicides were sprayed in 0.2% concentration on *Melia azedarach*, *P. radiata*, *Albizzia lebbek*, *Morus alba*, *Olea cuspidata*, *Tamarax articulata* and *Eucalyptus* sp. Both molluscicides showed phytotoxic effect on *Morus alba* and *Melia azedarach* while rest of the plants were not affected. Bayluscid and Brestan can therefore be safely used against land snails attacking coniferous nurseries in the hills.

References

1. BANCH, R.J. 1968. Test results and critical remarks on the possibility of application 5, 2-dichloro-4-nitrosalicy-lanilide ethanolamine in control of fasciolosis ARCH EXP VETERINARMED 22(I): 197-204.

2. CROWELL, H.H. 1968. Slug and snail control with experimental poison baits J.ECO. ENTOMOL 60(4): 1048-1050.
3. MURALEEDHARAN, K.S. PRASANWA KUMAR, K.S. HEGDE and V.S. ALWAR 1977. Relative efficacy of CuSO_4 , Sodium Pentachlorophenate and Bayluscid against fresh water snail *Indoplanorbis exustus* INDIAN J ANIM SCI 45(10): 739-743
4. ROTH, HERBERT and JOHN, W. KENEDY. 1973. Helicella snails infesting rose marry seeds. Methyl bromide and other fumigants for quarantine control. J. ECON ENTOMOL 66(4): 935-936.
5. SPIELMAN ANDREW and AKILULEMMA. 1973. Endod extract a plant derived molluscicide. Toxicity for mosquitoes. AM J TROP MED HYG 22(6): 802-804.
6. TAREZYNSKI, STEFAN and LESZEK SZEPELSKI. 1969. Studies on the control of Galba Iruncatula in large pastures. ACTA PARASITOL POL 16 (1/19): 177-120.

Bayluscid proved to be the most effective chemical. It was in 0.2% dose caused 80% mortality in 72 hours. Sodium and NaCl were less effective.

The results are in conformity with those reported by Muraleedharan et al (1977). Bayluscid and Dithion were found effective to destroy carpenter's seedling in 0.2% concentration. In order to confirm the phytotoxic effect on seedlings of forest trees these molluscicides were sprayed in 0.2% concentration on *Albizia arborea*, *P. radiata*, *Albizia lebbek*, *Morus* and *Olea* saplings. *Thaana mitchellii* and *Thaana sp.* Both molluscicides caused phytotoxic effect on *Albizia* and *Morus* while no effect was seen on *P. radiata* and *Olea*. Bayluscid and Dithion can therefore be safely used against land snails attacking coniferous nurseries in the hills.

References

1. BANCH, R.L. 1968. Test results and critical remarks on the possibility of applying 2, 2-bis(4-chlorophenyl)-4-nitro-1, 3-dioxane in control of fascioliasis. ARCH EXP VETERINAR MED 22(1): 127-134.