

Deltamethrine

Nigella sativa L.

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(K-othrine 25% EC) Deltamethrine

Nigella sativa L.

% 4.0 - % 0.01

%0.05 - % 0.01

6.12

()12.8 11.47 8.44

%4.0 2.0

% 1.0- 0.1 (MSt)

%0.05

Evaluation of Deltamethrine Pesticide Effect in the Plant Cell Growth Using *Nigella sativa* L. Callus Cultures

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ABSTRACT

This study aimed to evaluate the effect of the pesticide Deltamethrine on plant cell growth, by using *Nigella sativa* L. tissue cultures. Different concentrations of the pesticide were used ranged between 0.01-4.0%. Results showed that the lower conc. 0.01-0.05% did not inhibit callus growth, but they enhanced the growth to yield 8.44, 11.47 and 12.89 g of callus fresh weight compared with 6.12 g for MSt. the conc. of 0.1-1.0% also enhanced callus growth but to lower level. Whereas 2.0 and 4.0% of the pesticide were growth inhibitors. Protein determination showed the same trend as with the fresh weight.

Keywords: *Nigella sativa*, Insecticides, plant tissue culture, Toxicity.

Insecticides

.(Van Emden and Pealall , 1996)

.(Wikipedia, 2009)

.(Thomson, 2001)

pyrethrum

pyrethroids

Deltamethrine .(Radcliffe and Hutchison, 2011)

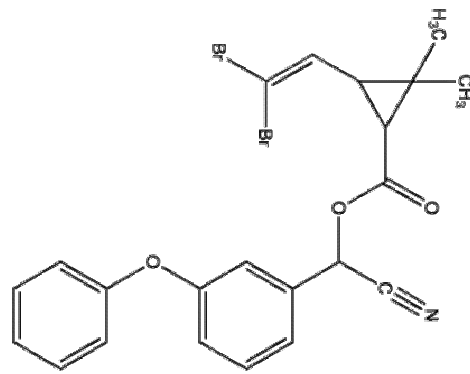
36 1974

Pyrethroid

Pyrethroids

.(Pulman, 2011)

..... Deltamethrine



(C₂₂H₁₉Br₂NO₃)

Deltamethrine

:1

(PAN Pesticides Database , 2010 – Chemicals)

()

.(2010)

)

.(2002

.(Zhou and Wu, 2006)

Nigella sativa L.

.Ranunculaceae

(Deltamethrine) K-Othrine

:

:

Nigella

sativa L.

(%6.4) % 96

(:) (2:1)

(1944) Hoagland Arnon (2010)
 (5.8-5.6) pH %2 %20
 % 0.7

Hepair

(5-4) ° (19± 1)

2000 (8 16)
 () 21 :

(Murashige and Skoog, 1962) (MS) (1.5-1)

(2,4-D) 2,4-Dichlorophenoxyacetic acid 10^{-6}
 (2002)

30 MS :

10^{-6} MS

(4.0,2.0, 1.0, 0.5 ,0.25, 0.1, 0.05 ,0.02, 0.01) 2,4-D

(K-Othrine 2.5%) EC Deltamethrine %

MS .(125: 1)

MS (2002) MSt 2,4-D 10^{-6}

MS .MSO

60 30 (Fresh Weight) .2,4-D

(Lowry *et al.*, 1951)

MS 60

..... Deltamethrine

³ / 100 10

.Bovine Serum Albumin

2,4-D MS

2,4-D

10⁻⁶

Deltamethrine

(% 0.05 0.01)

MS

12.89 11.47,8.44

% 0.05

6.12

% 0.05, 0.02, 0.01

MS

0.1

(-2-)

60

MSt

.(2)

%1.0

% 4.0 2.0

.2

naphthyl

deltamethrine

Naphthalene acetic acid (NAA)

naphthyl

(1985)

Iwamura

(2008)

Spiers

deltamethrine

.2

2,4-D

2,4-D

% 0.05- 0.01

MS

(5 4)

(MSt

)

MSt

.(2002 ; 2010)

Chand and Roy,

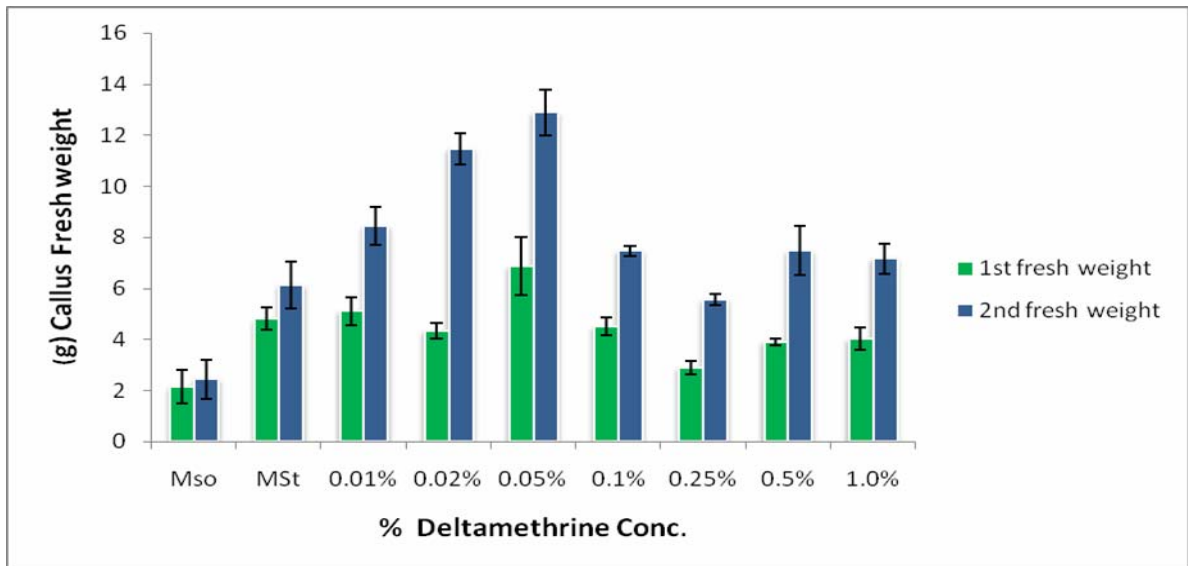
.(1980)

(MSO)

2,4-D

(Neumann *et al.*, 2009)

.(2002)



MS

Nigella sativa L.

()

:2

30

Deltamethrine

2,4-D

10^{-6}

60

.(3)

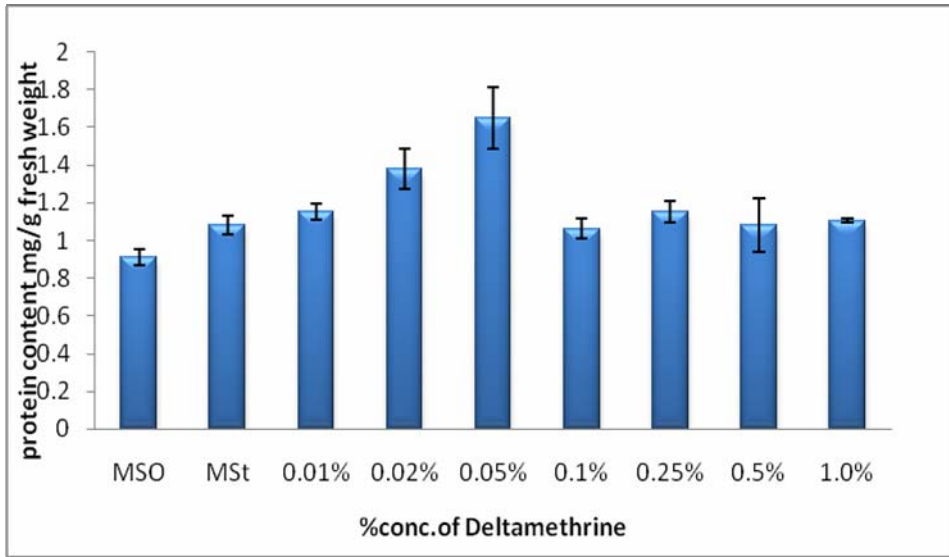
% 0.05

(Palavan-Ünsal *et al.*, 2002)

bioconversion

.(Phillipson , 1990 ; Bhojwani and Razdan , 1996 ; Yong *et al.*, 2008)

.(Umamaheswari and Lalitha, 2007)

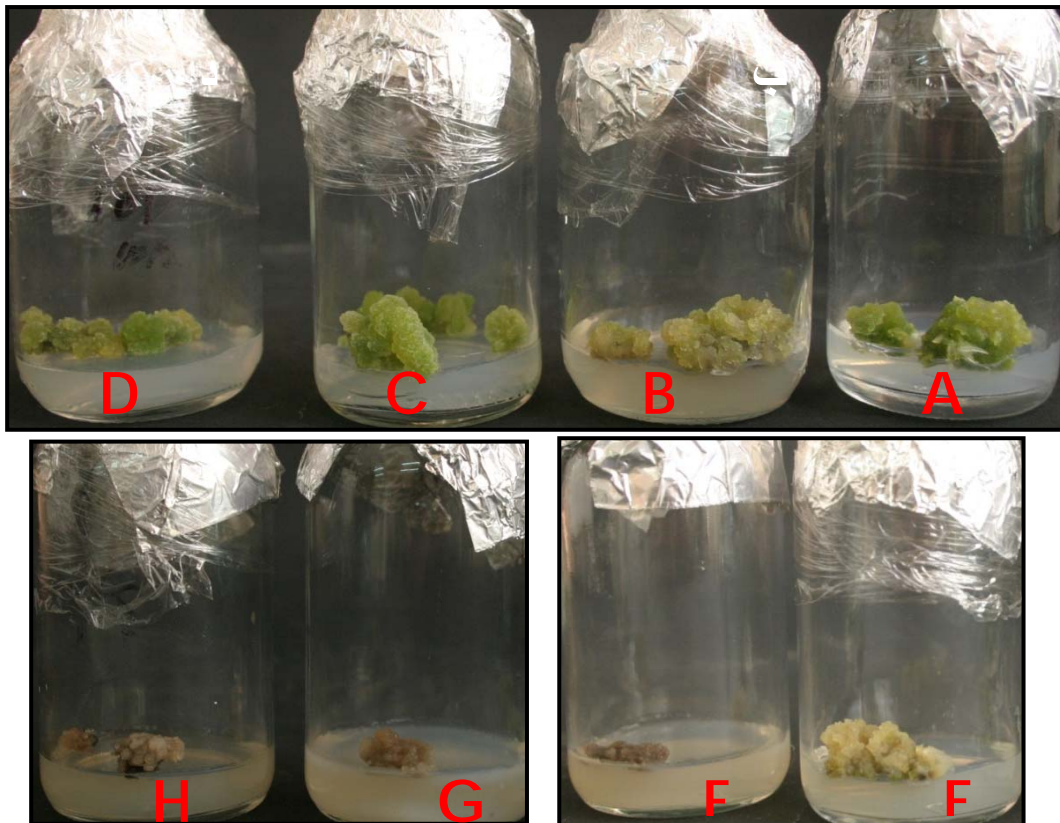


MS

Nigella sativa L.

:3

60 Deltamethrine



MS

21

Nigella sativa

:4

MSO (B) 2,4-D

10^{-6}

MS

(A):

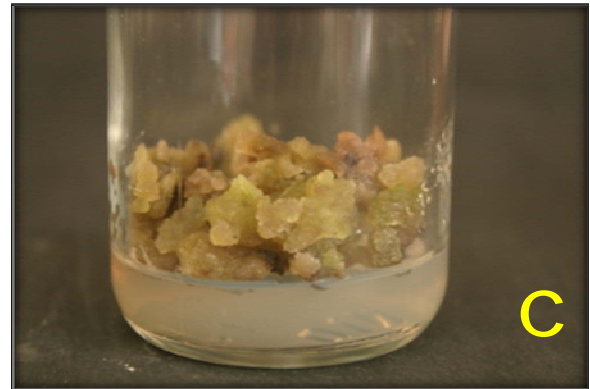
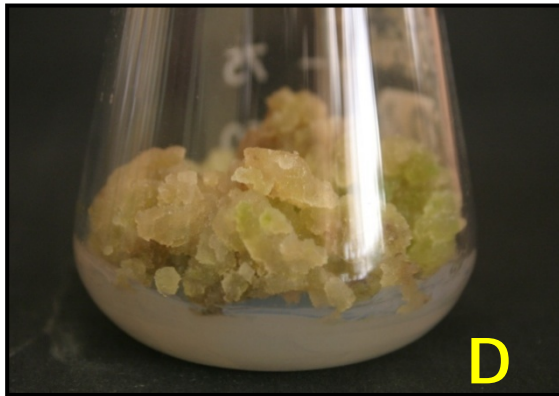
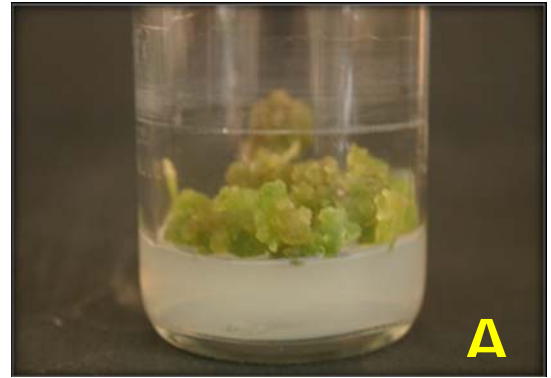
) Deltamethrine %4.0 ,2.0 , 0.5 0.25 , 0.1 ,0.05

A

(H-C)

.(

-H-G-F-



MS 60 *Nigella sativa* L. : 5
 MS -A Deltamethrine
 %0.05 0.02 0.01 A D-B 2,4-D 10⁻⁶
 D C B .Deltamethrine

.(2002) .

Nigella sativa L.

." (2002)

.(2010)

Nigella sativa L.

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