ONLINE ISSN : 1349-0923
PRINT ISSN : 1348-589X

Journal of Pesticide Science
Vol. 32 (2007) , No. 3 pp.229-234

[PDF (418K)] [References]

Reduction of dieldrin concentration in cucumber fruits using *Cucurbita* rootstocks and activated carbon

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(Received: December 7, 2006)
(Accepted for publication: February 26, 2007)

Abstract:
Dieldrin uptake by cucumber fruits was examined using a variety of cucumber scions and squash rootstocks. The effect of activated carbon on reducing uptake was also determined. Three varieties of cucumber (*Cucumis sativus* L.; Sharp 1, Natsusuzumi and Nankyoku 2) and three varieties of squash (*Cucurbita* spp.; Kirameki, Yuyuikki-black and Shintosa) were used. There was no significant difference in dieldrin uptake between cucumber scion varieties. The order of uptake between the varieties of rootstock was Shintosa > Yuyuikki-black > Kirameki = self-rooted plants. In the case of Shintosa, a change to Kirameki or self-rooted plants reduced the dieldrin concentration to 53–34%, treatment of soil with activated carbon to 57%, and the combination of changing the rootstock to Kirameki with activated carbon to 16%. In the case of Kirameki, treatment of soil with activated carbon reduced the dieldrin concentration in cucumber fruits to 42%. In the case of self-rooted plants, a change to grafting culture with Kirameki rootstock and treatment of soil with activated carbon was effective in reducing dieldrin concentration.

Keywords:
dieldrin, *Cucurbita*, plant uptake, activated carbon, pesticide residue

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