

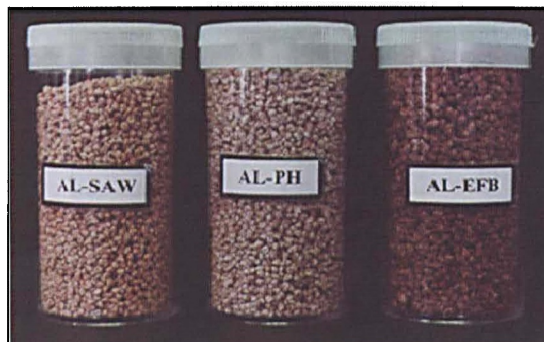
Development of Controlled-release Formulation of Herbicide



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In recent year the important of efficiency of application of pesticides becomes more apparent in the height of problems of environmental contamination and effect on non-target and beneficial organisms. An effective approach to overcome these problems is through the use of controlled-release formulation. Controlled-release formulations (CRF) of diuron and alachlor were prepared using sodium alginate or pectin as a matrice and kaolin or agricultural by-products empty fruit bunch, sawdust and paddy husk as inert materials. The release rates of diuron and alachlor from the CRF in distilled water were determined by chemical assay using a high performance liquid chromatography with ultra-violet detector. The CRF with pectin as matrice showed initial release of active ingredient faster than the CRF with alginate as matrice. The release of diuron and alachlor reached maximum 24 and 48 hours respectively following placement in distilled water.

The efficacy of the controlled-release formulations and conventional formulation (CF) of diuron and alachlor were than evaluated against *Paspalum conjugatum* and *Diodia ocimifolia* in glasshouse. Based on percent mortality of *D. ocimifolia* and *P. conjugatum*, the pectin based CRF showed similar efficacy compared with the conventional formulation indicating high initial release of active ingredient from these formulations. Significant higher seedling mortality was observed of CRF compared with the conventional formulation at 2 months after treatment indicating prolong efficacy of CRF. The results indicated that the matrice of CRF influenced the release and efficacy of diuron and alachlor.



Alginate-agricultural by-product controlled-release formulation of diuron

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