The Effects of Agricultural Practices on Invertebrate Diversity in the Rice Paddy Land of Eastern Taiwan.[1]

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Abstract

The extensive organic-rice culture and long agricultural history of Fuli Township were appropriate for discussing the discrepancy of community structures of invertebrates between organic and conventional paddy fields in Eastern Taiwan. Surveying periods begun in early April to Mid-June when rice fields were planted between tillering stage to harvest in first crop season. Samples were collected using a regular sweeping method once every fortnight and classified for agrobiodiversity and indicator species analysis. Including 46150 individuals were collected, belonging to 14 orders, 88 families, 173 genus across 209 species. Among these invertebrates, 188 species were found in organic paddy fields, greater than conventional fields with 137 species, diverse ecological function species number were also greater in organic paddy fields. To replace the proportions of neutral species, pests and predators were decreased 20 % significantly in conventional fields than organic fields. Research analysis showed dissimilarity between organic and conventional paddy fields were mainly contributed by 29 species , including 5 natural enemy species such as the parasitic wasp of the rice skipper (*Sympiesis parnarae*), a parasitic wasp (*Antrocephalus sp*.), the ladybug (*Micraspis discolor*), the long-jawed spider (*Tetragnatha maxillosa*), and a mantis fly (*Ochthera sp*.). Each speicies had higher abundance in organic paddy field significantly. As analysis of similarity revealed, there were no significant diverse between organic paddy fields and conventional fields.

Key words: organic cultivation, invertebrate, paddy field, agrobiodiversity indicator species.

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