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## Characterization of Health and Environmental Risks of Pesticide Use in Market-Gardening in the Rural City of Tori-Bossito in Benin, West Africa

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### ABSTRACT

A study on the use of pesticides in market-gardening production was carried out on 108 market-gardeners in the rural city of Tori-Bossito in Southern Benin. The objective of the study was to characterize the potential risks of pesticides usage by farmers and the impacts on their health and on the environment. Two risk indexes were calculated for each pesticide: an environmental risk index (ERI) and a health risk index (HRI). First stage larva of the mosquito *Aedes aegypti* were used as bio-indicator for detecting insecticide residue in vegetable before their harvesting on the farms. The highest ERI were obtained for carbofuran, chlorpyrifos ethyl and endosulfan. Pesticide residues were found in 42% of the samples of leaves of eggplant, cucumber, amaranth and solanum. Vegetables growers used pesticides that may be highly hazardous and which were not registered in most cases. These situations could have unexpected consequences including the exposure of consumers to health hazards.

### KEYWORDS

Vegetable; Pesticide Residues; Bio-Indicator; Risk Index; Environment; Health

### Cite this paper

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