

## Global Summit on ENVIRONMENTAL HEALTH

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**Potato (*Solanum tuberosum* L.) Leaf extract concentration affects performance and oxidative stress in green peach aphids (*Myzus persicae* (Sulzer))****Peter Quandahor**

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**Statement of problem:** The green peach aphid is considered a serious problem due to its ability to attack a wide range of plant species while impeding crop production. Green peach aphids cause shoot deformation and the abortion of fruits or flowers, distort normal plant growth, and ultimately cause economic damage to crops if not properly controlled. As a result, a wide variety of synthetic insecticides are constantly used for their management; however, the associated risks have become a major concern, and synthetic insecticides must be replaced with botanical biopesticides as environmentally benign strategies. This study was conducted to determine the aphicidal effect of a leaf extract of the Atlantic potato cultivar on the performance of green peach aphids.

**Methodology & Theoretical Orientation:** Three concentrations of the leaf extract (100, 75, and 50% potato extract), synthetic pesticide (Beta cypermethrin 4.5%), and distilled water (control) treatments were applied in a greenhouse experiment. The results showed that the synthetic pesticide, which was used as a standard check, caused the maximum aphid mortality, followed by the 100% potato leaf extract. Compared with the other botanical treatments, the 100% extract produced low mean rates of survival, aphids' average daily reproduction, the number of nymphs per plant, and the number of nymphs per adult. This treatment also increased the accumulation of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and malondialdehyde (MDA), glutathione-s-transferase, mixed-function oxidase, and carboxylesterase content in the green peach aphids.

**Conclusion:** This study demonstrates that the highest concentration of potato (Atlantic cultivar) leaf extract (100% extract) could be used as the appropriate dosage for the control of green peach aphids on potatoes, which could greatly reduce the use of synthetic insecticides and promote ecosystem sustainability.

**Biography**

Peter Quandahor is presently a research scientist (Entomologist) in Council for Scientific and Industrial Research – Savanna Agricultural Research Institute, Ghana. His specialization and interest focused on; Insect Pest Management, Insect Ecology, Biology of Insect Pests and Vectors, Plants Resistance Mechanisms, Pesticide toxicity and developing and disseminating environmentally friendly measures in protecting potatoes and vegetable crops.