



## Identification and phylogenetic relationship of fungi species associated with potato aphids in Bamenda, Northwest Region of Cameroon

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### ABSTRACT

**Objective:** Potato (*Solanum tuberosum* L.) is one of the world's most important cultivated tuber crops in Cameroon. Potato aphids remain a major pest to potato plant thus greatly reducing its productivity. Inadequate information still exists on identification of fungi species associated with potato aphids. The aim of the study was therefore to identify fungi species associated with aphids of potato using molecular techniques to determine the entomopathogenic species which can be used to control potato aphids to increase potato productivity as well as increase food security.

**Methodology and Results:** One hundred samples of aphid's cadavers were collected monthly from the field, put in zip lock bags and preserved in coolers. These samples were then transported to the laboratory and cultured on potato dextrose agar. After a period of 7 days, they were sub-cultured to obtain pure cultures. The pure cultures were obtained and molecularly identified using the ribosomal ITS and TEF regions. Results from cultural identification revealed fungi belonging to three genera: *Fusarium*, *Aspergillus* and *Penicillium* with different species in these genera. Sequence data analysis from the ITS gene regions revealed 6 fungi species namely, *Fusarium oxysporum*, *Aspergillus sydowii*, *Aspergillus niger*, *Curvularia affinis*, *Microascus murinus* and *Trichoderma erinaceum*. Also, 6 species with the translation elongation factor (TEF) were identified namely, *Cladosporium cladosporoides*, *Fusarium oxysporum*, *Fusarium babinda*, *Trichoderma gamsii*, *Chaetomium cochiloides* and *Aspergillus niger*. Phylogenetic analysis produced a phylogram consisting of sequences of samples collected from the study area together with those from the GenBank.

*Conclusions and application of results:* Some of these fungi species have been reported to be entomopathogenic. Further research will screen entomopathogenic isolates that will serve as a biocontrol strategy against potato aphids which is an environmentally friendly method of pest control compared to synthetic pesticides.

**Keywords:** Potato, Aphids, Fungi, Identification, Cultural, Phylogeny.