Genetic diversity of olive insect pests and their natural enemies in the Western Cape

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The Western Cape of South Africa is a relatively young olive production region with significant growing potential. Olives are affected by a number of insect pests that cause damage to fruit and trees. The most important insects affecting olive trees are olive flies (*Bactrocera* spp.), olive beetles (*Argopistes* spp.) and olive lace bug (*Plerochila australis*), and their natural enemies (parasitoids wasps). The diversity and infestation rate of these species is poorly characterized, both in domestic and wild olives, and this hinders the development of new and more effective control strategies.

The project aims to assess the occurrence and infestation rate of olive flies, olive beetles, olive lace bug and their parasitoids in wild and domestic olives in the Western Cape and to generate primary DNA sequence data. The data will include estimates of genetic diversity in olive flies, novel complete mitochondrial genomes and sequences for barcoding in six species. Given the richness of insect species in South Africa is expected that previously undescribed/unsurveyed species will be found in this extensive sampling. All primary genetic data generated in this project will be made available in public platforms such as BOLD, GenBank and SANBI. Furthermore, we will use the new sequences to reconstruct the phylogenetic trees of the Bactrocera genus and the Argopistes genus. Recovered voucher insect specimens will be deposited in South African collections for future reference. The novel sequences will also be used to develop a new DNA-based species identification method complementary to classic field monitoring of olive insect pests.