FITNESS ASSESSMENTS OF *ANOPHELES ARABIENSIS* LABORATORY COLONIES FROM SOUTHERN AFRICA AND THEIR SUITABILITY FOR THE STERILE INSECT TECHNIQUE

Leyya Essop

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ABSTRACT

In order to employ the Sterile Insect Technique (SIT), biologically fit mosquitoes able to compete with their wild counterparts, suitable field sites for mass release of sterilized male mosquitoes, and appropriate methods of rearing genetic sex-separation (GSS) mosquito strains are required. The life history traits and biological fitness of four laboratory-reared, southern African *Anopheles arabiensis* strains were investigated. Despite being colonized at different times, the four strains demonstrated comparable levels of biological fitness. Three sites in the Kruger National Park were assessed as possible SIT field sites. Mosquito collections were conducted at each site during three summer months. *Anopheles arabiensis* was predominant at Malahlapanga during each collection period, establishing Malahlapanga as the most appropriate site for SIT field trials. A standard larval diet was shown to be appropriate for rearing *An. arabiensis* GSS. This work formed the laboratory basis for the evaluation of a SIT strategy for South Africa.