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Characterisation of anopheles funestus (diptera: culicidae) colonisation parameters

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ABSTRACT

The knowledge on several biological and ecological aspects of malaria vectors continues to grow as numerous stable laboratory colonies in different geographical regions are available. However, knowledge of these aspects on *Anopheles funestus*, a major African malaria vector, is limited due to difficulties in colonisation of this species. The aim of this dissertation is to characterise and understand critical baseline parameters that promotes successful sustenance of *An. funestus* under laboratory conditions using an already colonised strain. Understanding such parameters can be used as a reference point for colonisation of other strains from different geographical areas. The life history parameters of a colonised *An. funestus* strain were characterised in relation to colonisation. The adaptability of the strain to an artificial blood feeding system was evaluated and two larval diets were assessed on its development. The effect of larval density on its life history traits was also investigated. The age specific life table attributes of *An. funestus* under laboratory conditions and their relation to colonisation showed high re-colonisation potential of this species. Adaptability of this species to an artificial cow blood feeding system using Parafilm-M® membrane was asserted. A standard Vector Reference Laboratory larval diet was shown to be appropriate both from a biological and economical perspective. However, it is worth noting that the strain used has been reared on this diet for over a decade and this might have an impact on the results. Overcrowding larvae in rearing containers negatively influenced the development and physiology in ways that have consequences for successful laboratory colonisation. The addition of an extra anchoring surface seemingly altered the adverse effects of overcrowding. The baseline data produced by this study suggests high re-colonisation potential of *An. funestus* under laboratory conditions. The data can be extrapolated and used as a reference point for colonisation of populations from other geographical regions. Further studies on characterisation and optimisation of parameters that promote colonisation of *An. funestus* are recommended.