

FINAL REPORT

Professor B.G.D.N.K. De Silva
ASP/06/RE/2009/18



Final Report

1. Grant No: ASP/06/RE/2009/18
2. Time period of grant: 15.01.2009 - 15.01.2011
3. Title of the project: Screening of *Anopheles culicifacies* Giles, for their sibling species status using DNA based methods
4. Institute where research was carried out:
 - i. Department of Zoology, Faculty of Applied Science, University of Sri Jayewardenepura
 - ii. Department of Chemistry, Faculty of Science, University of Colombo
5. Chief scientific investigator: Prof. B.G.D.N.K. de Silva
6. Amount of funds spent from the University grant: Rs. 378,000.00
7. Any other sources of funding: None

Contents

1.0 Introduction	5
1.1 Malaria as a global threat.....	5
1.2 Vehicle for the malaria; Anopheline vector	5
1.3 Habitats of the vector mosquito: <i>Anopheles culicifacies</i>	6
1.4 Identification of vector species	7
1.5 <i>An. culicifacies</i> species complex	8
1.6 Identification of the sibling species complex	8
1.7 Importance of vector species identification.....	10
1.8 Importance of current study	10
1.9 Objectives of the study.....	11
2.0 Methodology.....	12
2.1 Field collection of mosquitoes.....	12
2.2 Field collection of mosquito larvae.....	12
2.3 Laboratory rearing of mosquitoes.....	13
2.4 Cytogenetic identification.....	13
2.5 Preparing mosquitoes for the extraction of DNA.....	13
2.6 DNA extraction.....	13
2.7 Identification of sibling species B & E using the DNA based methods..	14

2.8 Larval DNA extraction and their use in PCR.....	15
2.9 Analysis of sibling species B, E and unidentified samples using the gene, cytochrome oxydase II (CO II)	15
3.0 Results.....	16
3.1 Cytogenetic identification.....	16
3.2 Use of larval DNA for the DNA based studies.....	17
3.3 Identification of Sibling species B and E using PCR method	18
3.4 Randomly Amplified Polymorphic DNA (RAPD).....	19
3.5 Analysis of sibling species B, E and unidentified samples using the gene, cytochrome oxydase II (CO II)	20
4.0 Discussion	22
5.0 Conclusions.....	25
6.0 Publications.....	26
7.0 References.....	27