

LIST OF TABLES

Table		Page
(1)	Number of shedding snails in the examined pre-patent period days.	42
(2)	Infection rate among the studied subgroups.	43
(3)	Cercarial production in the studied subgroups.	44
(4)	Mean cercarial shedding over three successive weeks per susceptible snail among the studied subgroups.	45
(5)	Mortality rate among the studied subgroups at the different studied pre-patent periods with compatibility status of the dead snails.	46
(6)	Correlation between infection and mortality rates in the studied subgroups.	48
(7)	The level of SOD ₁ enzyme per snail's gram tissue in Units/gram tissues among the studied subgroups.	50
(8)	SDS-PAGE analysis, showing number of peptide bands and molecular weights of the studied uninfected young group and infected young subgroups.	52
(9)	SDS-PAGE analysis, showing number of peptide bands and molecular weights of the studied uninfected adult group and infected adult subgroups.	53
(10)	Calculation of Dice similarity coefficient between all subgroups.	55

LIST OF FIGURES

Figure	Page
(1) <i>Schistosoma mansoni</i> life cycle.	5
(2) Schematic representation of <i>Biomphalaria</i> shell.	10
(3) Morphological illustration of <i>Biomphalaria alexandrina</i> soft tissue (right side view).	10
(4) Morphological illustration of <i>Biomphalaria alexandrina</i> soft tissue (left side view).	11
(5) <i>Schistosoma mansoni</i> / <i>Biomphalaria</i> interactions.	19
(6) Experimental design of the parasitological study.	35
(7) Experimental design of the biochemical study.	37
(8) The pre- patent period among the studied subgroups.	42
(9) Infection rate among the different studied subgroups.	43
(10) Mean cercarial shedding over three successive weeks per susceptible snail among the different studied subgroups.	44
(11) Mortality rate among the studied subgroups.	47
(12) Number of dead snails all over the three weeks of shedding.	47
(13) Correlation between infection rate and mortality rate among the studied subgroups.	48
(14) The level of SOD ₁ enzyme per snail's gram tissue in Units/gram among the studied subgroups.	51
(15) Peptide mapping of snails' tissue of the studied sub-groups using SDS-PAGE .	54
(16) Total lab analysis for SDS-PAGE of the studied subgroups.	54
(17) The effect of complex interaction between age, genetic background and internal defense on determination of compatibility status in young and adult <i>Biomphalaria alexandrina</i> snails. Genetic background has the upper hand in young snails while Internal defense has the upper hand in adult snails.	63

LIST OF ABBREVIATIONS

NTD	Neglected tropical disease
WHO	World Health Organization
<i>S. haematobium</i>	<i>Schistosoma haematobium</i>
<i>S. mansoni</i>	<i>Schistosoma mansoni</i>
<i>S. japonicum</i>	<i>Schistosoma japonicum</i>
<i>S. mekongi</i>	<i>Schistosoma mekongi</i>
<i>S. malayi</i>	<i>Schistosoma malayi</i>
<i>S. intercalatum</i>	<i>Schistosoma intercalatum</i>
<i>S. mattheei</i>	<i>Schistosoma mattheei</i>
DALYs	Disability-adjusted life years
<i>B. alexandrina</i>	<i>Biomphalaria alexandrina</i>
PZQ	Praziquantel
USAID	United States Agency for International Development
SRP	Schistosomiasis Research Project
PCR	Polymerase chain reaction
<i>B. glabrata</i>	<i>Biomphalaria glabrata</i>
<i>B. tenagophila</i>	<i>Biomphalaria tenagophila</i>
<i>B. peregrina</i>	<i>Biomphalaria peregrina</i>
<i>B. straminea</i>	<i>Biomphalaria straminea</i>
<i>B. pfeifferi</i>	<i>Biomphalaria pfeifferi</i>
<i>B. sudanica</i>	<i>Biomphalaria sudanica</i>
GIS	Geographical information system
m/sec	meters/second
°C	degree Celsius or centigrade
Ca⁺⁺	Calcium ions

mg/L	milligrams/Liter
SOD	Superoxide dismutase enzyme
O₂	Oxygen
H₂O₂	Hydrogen peroxide
pH	Power of hydrogen
TCP	Total cercarial production/ 100 exposed snails
IDS	Internal Defense System
HPO	Hemocyte Producing Organ
APO	Amebocyte Producing Organ
TNF-α	Tumor necrosis factor alpha
ROS	reactive oxygen species
RNS	reactive nitrogen species
SOD₁	Cytosolic copper/zinc superoxide dismutase enzyme
O₂⁻	Superoxide ions
FREP	Fibrinogen-related proteins
BgTEP	<i>Biomphalaria glabrata</i> ThioEster-containing Protein
β-PFT protein	Beta pore forming toxin family
DTW	Dechlorinated tap water
PPP	Pre-patent period
IR	Infection Rate
MR	Mortality Rate
MCO	Mean Cercarial Output
R	Reagent
U	Unit
KDa	Kilo Dalton
MW	Molecular Weight