

MATENDA A TOXOPLASMOSIS

KUTSEKULA ZINSINI ZA TIZILOMBO TODABWITSA TOSAONEKA NDI MASO



University
of Glasgow

Wellcome Centre
for Integrative
Parasitology



**MATENDA A TOXOPLASMOSIS= KUTSEKULA ZINSINSI ZA TIZILOMBO
TODABWITSA TOSAONEKA NDI MASO NDI BUKU LA NTHABWALA LOMWE
LINATSINDIKIZIDWA NDI WELLCOME CENTRE FOR INTEGRATIVE PARASITOLOGY,
A JAMIE HALL NDI A EDWARD ROSS MUCHAKA CHA 2022.**

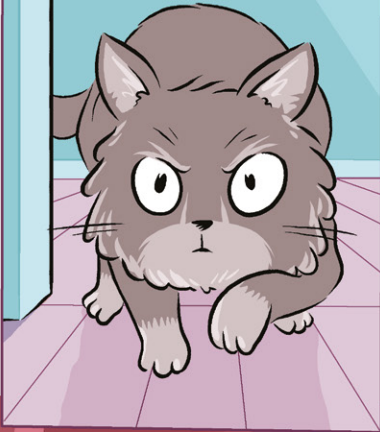
BUKULI LINALEMEDWA NDI A JAMIE HALL NDI A EDWARD ROSS. LINANTHAUZIRIDWA
MUZINTHUNZI NDI A EDWARD ROSS. DR LILACH SHEINER ANATHANDIZA NDI ULANGIZI WA
SAYANSI.

ULAMULIRO WONSE WA BUKU LI NDI WA WELLCOME CENTRE FOR INTEGRATIVE
PARASITOLOGY NDI OLEMBA. SIKOLOLEDWA KUTI GAWO LILILONSE LA BUKULI
LITSINDIKIZIDWE KAPENA KUKOPEDWA MWANJIRA ILIYONSE POPANDA CHILOLEZO CHA
OTSINDIKIZA NDI OLEMBA.

BUKULI LINASINDIKIZIDWA NDI WELLCOME CENTRE FOR INTEGRATIVE PARASITOLOGY, SIR
GRAEME DAVIES BUILDING, UNIVERSITY OF GLASGOW, 120 UNIVERSITY PLACE,
GLASGOW G12 8TA

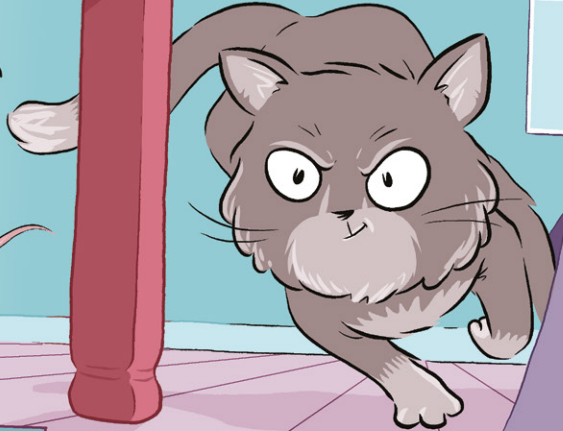
BUKULI LINA SINDIKIZIDWA PA MAPEPALA OBWEZEREDWANSO

KUSAKA KWAYAMBIKANO



KHOSWE UYU AKUONEKA NGATI KA CHAKUDYA
KU MPHAKA AKUMUTHAMANGITSAYO

KOMA MKATI MWAKE MWAGONA
TIZILOMBO TAMBIRI TOSAONEKA
NDI MASO TOMWE TIKUFUNAFUNA
THUPI LOTI TILOWEMO



MPHAKA WOPUSA, SUNAMVE
CHILICHONSE CHIMENE
NDIMAKUZA POMPANO?





KHALA PANSI. NDUGANIZA NGATI NDI NTHAWI YOTI TICHEZE ZA MATENDA OTCHEDWA TOXOPLASMOSIS



AKA NDI KACHILOMBO KA TOXOPLASMA

NDI KACHILOMBO KOSAONEKA NDI MASO KAMENE NDIMAKHALA NDIKUKAPHUNZIRA TSIKU LIRILONSE KUNTCHITO



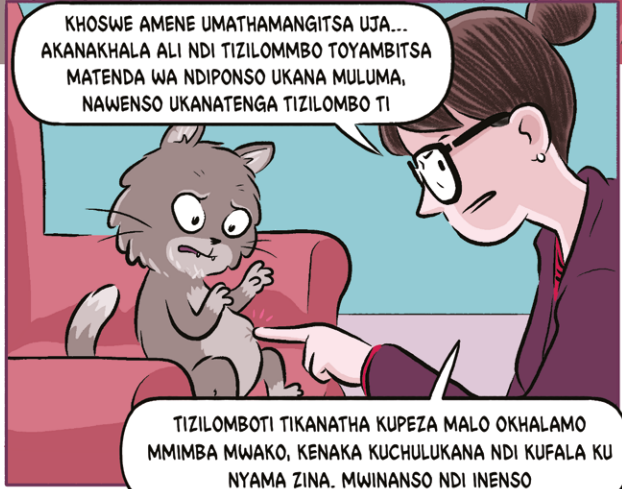
NDI KODABWITSA MU ZOTENGELEKA, KAMATHA KUFALA KWA NYAMA ZAMBIRI

MUCHILICHONSE KUYAMBIRA MVUU, A KADYANSONGA, NKHOSA, MAKOSWE NGAKHALE ANTHU

MEWZ! (said by the cat on the cow)



KOMABE, MALO AKE OKHALAMO NDI MKATI MWA THUPI LA AMPHAKA NDIPO KUFALIKA KWAKE KUMAKHALA KOBWERERABWERERA KUCHOKELA KWA AMPHAKA NDI NYAMA ZATSOKA ZOMWE ZIMASAKIDWA



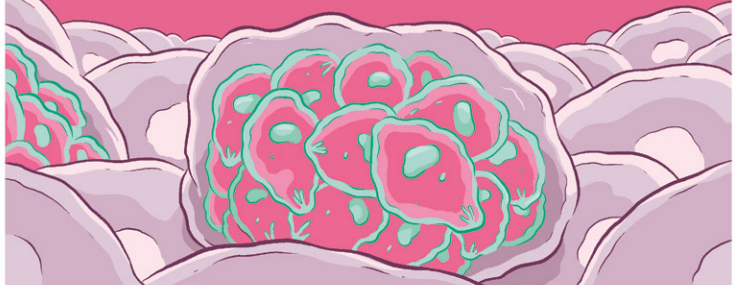
KHOSWE AMENE UMATHAMANGITSA UJA... AKANAKHALA ALI NDI TIZILOMBO TOYAMBITSA MATENDA WA NDIPONSO UKANA MULUMA, NAWENSO UKANATENGA TIZILOMBO TI

TIZILOMBOTI TIKANATHA KUPEZA MALO OKHALAMO MMIMBA MWAKO, KENAKA KUCHULUKANA NDI KUFALA KU NYAMA ZINA. MWINANSO NDI INENSO

KACHILOMBO KA SIKAMAFALIKIRA POKHAPOKHA MWINI THUPI WOKHALA NDI TIZILOMBO TI WADYEDWA KAPENA KULUMIDWA. KALI NDI NJILA ZINA ZOMWE KAMAFALIKIRANSO



M'MIMBA MWA AMPHAKA, TIZILOMBO TI TIMAPANGA TINTHU TING'ONOTING'ONO TOLIMBA TOUNDANA NGATI CHOTUPA TOMWE TIMATULUKA KUDZERA M'CHIMBUDZI



NGATI MATCHELA, TIZILOMBO TOKHALA NGATI ZITUPAZI TIMAKHALA MU UBWEYA KAPENA MU CHILENGEDWE KWA ZAKA, NKUTULUTSA TIZILOMBO TOYAMBITSA MATENDA TIKAPEZA MWAYI OLOWA M'NYAMA ZINA

UKHOZA KUTENGA TIZILOMBO TI KUDZERA MU FUMBI LAKUDIMBA, MU UBWEYA WA NYAMA KAPENANSO POKUDYA ZAKUDYA ZOSAPHIKIDWA MOKWANIRA

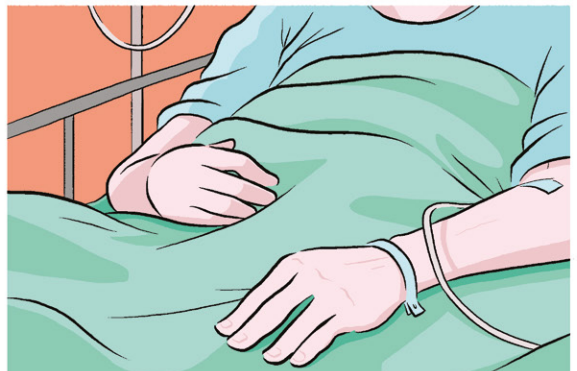


KWA NTHAWI ZAMBIRI, TIZILOMBO TI SITOOPA KWAMBIRI KWA ANTHU. PAFUPIFUPI THEKA LA ANTHU ALI NDI TI ZILOMBO TI, NDIPO AMBIRI MWA IWO SAMADZIWA NDIKOMWE



KOMA NTHAWI ZINA, TIZILOMBO TI TIMATHA KUONONGA KWAMBIRI, POYAMBITSA MATENDA OTCHEDWA TOXOPLASMOZIS.

AZIMAYI OYEMBEKEZER A AKHOZA KUPATSIRA TIZILOMBO TI KWA ANA AWO OSABADWA, ZIMENE ZIMAKHALA ZOSAKHALA BWINO.



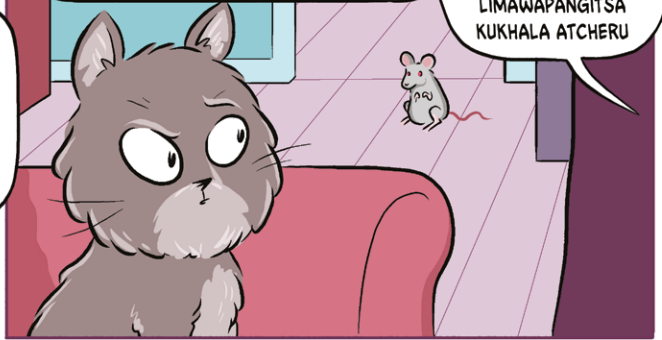
KOMANSO, NGATI CHITETezo CHA M'THUPI CHA MUNTHU CHAONONGEKA CHIFUKWA CHA MANKWALA KAPENA MATENDA ENA MONGA EDZI NDI KHANSA - TIZILOMBO TI TIMAKHALA TOOPA, KUONONGA UBONGO, MTIMA, MAPAPO KAPENANSO MASO.

NTCHITO YANGA NGATI KADAULO WAZA
SAYANSI NDIYOFUNA KUMVETSETSA MMENE
TIZILOMBO TI TIMAGWIRIRA NTCHITO
KOMANSO CHIMENE CHIMPANGITSA KUTI
TIZIKHALA TOPAMBANA KWAMBIRI
POYAMBITSA MATENDA

M'MENE
TIKUPHUNZIRA
ZAMBIRI ZA IZI,
TIKUZINDIKIRA
NDIKUONA
ZAMBIRINSO
ZODABWITSA ZA
TIZILOMBO TI

MMENE UKUDZIWIRA, NJIRA IMODZI
YOTI TIZILOMBO TI TIFALE NDIKUTI TIDYEDWE
KAYE. TIMAFUNA NYAMA ZOMWE TILIMO
ZO ZIDYEDWE.

KOMA PALI VUTO,
MAKOSWE CHIBADWIRE
CHAWO AMAOPA
AMPHAKA KOMANSO
FUNGO LA AMPHAKA
LIMAWAPANGITSA
KUKHALA ATCHERU

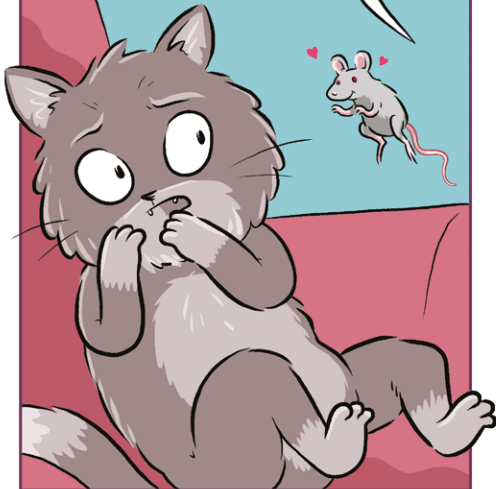


ZIKHOZA KUKHALA
ZOTHANDIZA KWA
TIZILOMBO TI NGATI
KHOSWE ANALI
WOSASAMALITSA NDI
WOPANDA TCHERU

TIZILOMBO TI TIKAFIKA
KU UBONGO, IZI
NDIZIMENE
ZIMACHITIKA



MAKOSWE AMENE ALI NDI TIZILOMBO
TI AMAKHALA OPANDA TCHERU NDIPONSO
AMAKHALA OKOPEKA NDI FUNGO LA AMPHAKA



KUKHALA
CHAKUDYA
CHOSAVUTA
KUPEZA KWA A
MPHAKA NDI
KOOPSA KWA
MAKOSWE, KOMA
ZIKUONEKA NGATI
IMAKHALA NJIRA
YABWINO IMENE
TIZILOMBO TI TIMA
ZITHANDIZIRA
KUFALA KWA
AMPHAKA
ENA



ZOTSATIRA ZA TIZILOMBO TI KU CHIKHALIDWE CHAMAKOSWE KWAPANGITSA A ZAKAFUKUFUKU KUTI AGANIZE ZOTI TIKHOZA KUSINTHANSO CHIKHALIDWE CHA MUNTHU

AZAKAFUKUFUKU AKUGANIZIRANSO NGATI TI ZILOMBO TI TITHA KUYAMBITSA MITUNDU INA YA MISALA KWA ANTHU KAPENANSO KUPANGITSA ANTHU KUTI AZIKHALA OSASAMALA ZIMENE ZINGAMAPANGITSE NGOZI ZA PA MSEWU NDI MACHITIDWE ENA OOPSA.



NDIZOOPSA KUTI TIZILOMBO TATING'ONO NGATI ITI TIKHOZA KUMATILAMULIRA

KOMA NZOSADZIWIKA NGATI TIZILOMBO TI TIMAKHUDZA CHIKHALIDWE CHA ANTHU



NGATI AKADAULO AZA SAYANSI, NDI NTCHITO YATHU KUFUNSA NDIKUYESA ZOMWE AKADAULO ENA AZA SAYANSI APEZA

CHIFUKWA CHA ICHI, AZAKAFUKUFUKU ENA AKUTSUTSANA ZA MGWIRIZANO WA PAKATI PA KUDWALA MATENDA A TOXOPLASMOSIS NDI MISALA KAPENA MCHITIDWE OSASAMALA



KUKUFUNIKA KAFUKUFUKU WAMBIRI. NDIZOTHEKA KUTI ZIFUKWA ZINA NDI ZIMENE ZIMAYAMBITSA MISALA YI KOMANSO KUTI TIZILOMBO TI SITIMAYAMBITSA MISALA YI KUMENE



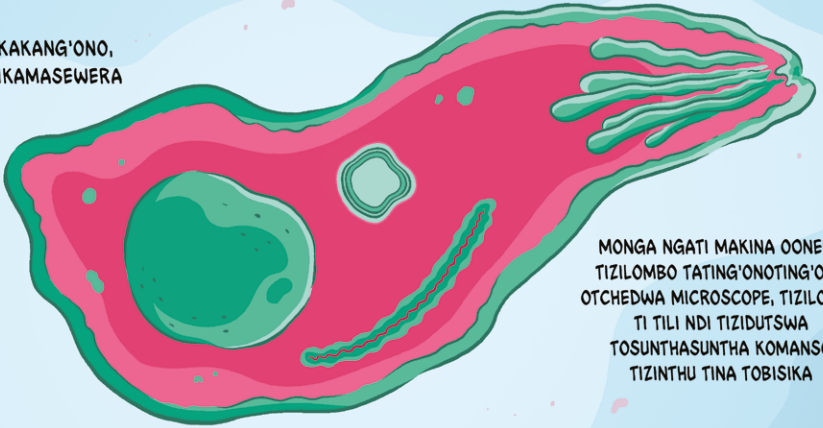
NGAKHALE KUTI TIZILOMBO TI
SITIKUTISANDUTSA KUKHALA AMISALA
KAPENA OSASAMALA, NDI TIZILOMBO
TODABWITSABE



KUNO KU
WELCOME
CENTRE FOR
INTEGRATIVE
PARASITOLOGY
TILI PALIKILIKI
KUFUFUZA
CHIMENE
CHIMAPANGITSA
KACHINTHU
KAKANG'ONOKA
KOSAUTSAKA
KAZITERE



NGAKHALE KALI KAKANG'ONO,
KACHILOMBOKA SIKAMASEWERA



MONGA NGATI MAKINA OONERA
TIZILOMBO TATING'ONOTING'ONO
OTCHEDWA MICROSCOPE, TIZILOMBO
TI TILI NDI TIZIDUTSWA
TOSUNTHASUNTHA KOMANSO
TIZINTHU TINA TOBISIKA

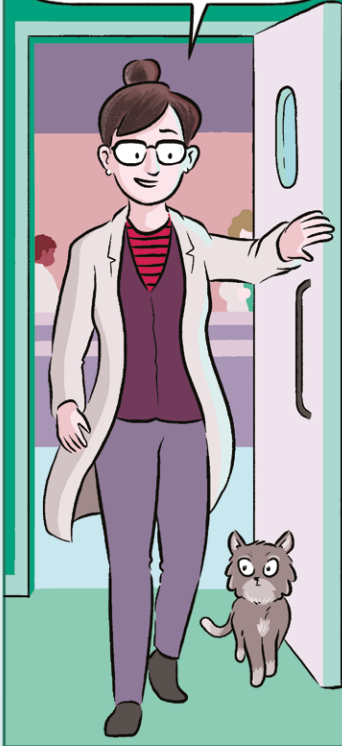
ZIMATHEKA BWANJI TIZIDUTSWA TI KUKHALIRA
PAMODZI, KUMAYENDA, KULOWA MU TIZIGAWO
TA M'THUPI MWATHU, KUCHULUKANA NDI
KUPHULIKA KENAKO NDIKUFALIKIRA?



NJIRA IMODZI YOMWE TINGADZIWIRE IZI
NDI KUGWIRIRA NTCHITO LIMODZI POFUNA
KUDZIWA CHITHUNZITHUNZI CHENICHENI
CHA TIZILOMBO TOVUTITSA TI



MWA MWAYI, TILI NDI ZIPANGIZO ZAMPHAVU ZOMWE TIMAGWIRITSA NTCHITO POONA ZOMWE ZIKUCHITIKA MKATI MWA TIZILOMBO TI



POTENGA MAJINI A NSOMBA ZA M'MADZI ZINA ZAKE ZOWALA, TIMATHA KU WA LUMIKIZA KU MAJINI A TIZILOMBO TI ZIMENE ZIMAPANGITSA KUTI TI ZIWALA NAONEKA BWINO PA MAKINA A MICROSCOPE. TIKATERO TIMATHA KUONA ZIWALO ZA TIZILOMBO TI NDI MMENE ZIMAGWIRIRA NTCHITO



NDIPO UPANGIRI WA ZA MAJINI UMATITHANDIZA KUTI TICHOTSE KAPENA KUSINTHA TIZIWALO TA TIZILOMBO TI KUTI TIZIWE ZIMENE TIZIWALO TI TIMACHITA



UPANGIRI WU UKUNKA NAPITA MTSOGOLO NTHAWI ZONSE. MBUYOMO, KUFUFUZA ZA JINI IMODZI KUMATENGA ZAKA ZAMBIRI



UPANGIRI WU UKUTHANDIZIRA KUONJEZERA CHITHUNZITHUNZI CHA TIZILOMBO TA TOXOPLASMA



PAKALI PANO, NDI UPANGIRI WATSOPANO WA MAJINI WU, TIMATHA KUPHUNZIRA NDI KUFUFUZA ZA MAJINI WA MWAMSANGA.

MUZONSEZI, ZINTHU ZOPATSA CHIDWI ZA TIZILOMBO TI ZIKUPEZEKA



TOXOPLASMA NDI TIZILOMBO TOPAMBANA KWAMBIRI. KOMA, KUSIYANA NDI TIZILOMBO TOYAMBITSA MALUNGO, TIZILOMBO TA TOXOPLASMA TI MAPAMBANA BWINOBWINO OPANDA KUPHA ANTHU AMBIRI

ANTHU AMATHA KUKHALA NDI TIZILOMBO TI KWA ZAKA ZAMBIRI OSADZIWA

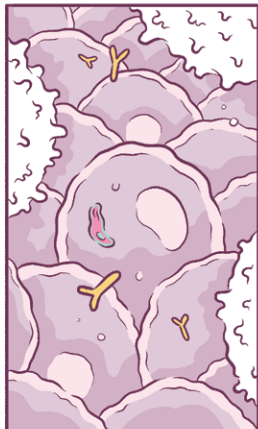


IZI ZIKHOZA KUTHEKA BWANJIZ KAWIRIKAWIRI, TIZILOMBO TOYAMBITSA TOXOPLASMOSIS TI TIMAPHEDWA NDI CHITETEZO CHA MTHUPI NDIPO ZOTSATIRA ZA KULIMBANAKU NDI ZIMENE ZIMAYAMBITSA ZIZINDIKILO ZAMBIRI ZAMATENDA WA

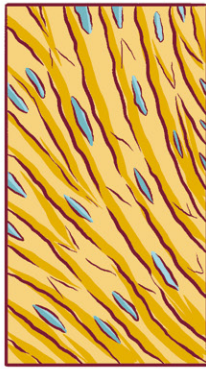
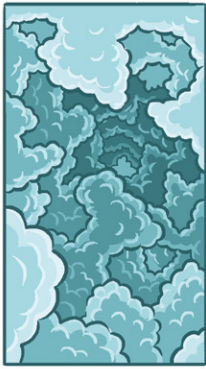


KOMA TIZILOMBO TA TOXOPLASMA TIMATHA KUBISALA OSATI KULIMBANA NDIZINTHU. TIKANGOTITENGA, TIMAPEZA NJIRA ZODABWITSA ZOFUNIRA KUKHALA NDI MOYO

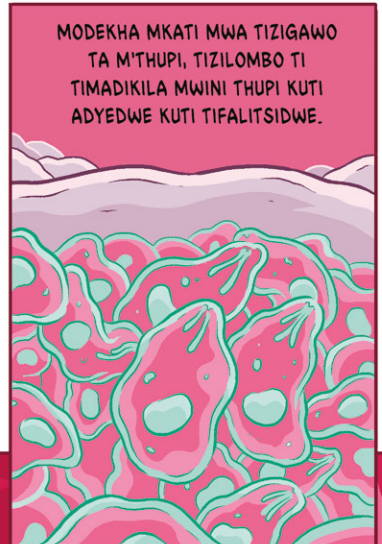
TIKALOWA M'THUPI, TIZILOMBO TI TIMAZEMBA POLOWA MKATI MWA TIZIGAWO TA TING'ONOTING'ONO TA M'THUPI MWATHU



TIZIGAWO TATHU TI TIMAKHALA MALO ABWINO KWA TIZILOMBO TI KUTI TISAMAONEKE NDI CHITETEZO CHA MTHUPI MWATHU. NDI KUBISALA KWA TIZILOMBO TI KU CHITETEZO CHATHU CHA M'THUPI, THUPI LIMAPITILIZA KUGWIRA NTCHITO ZAKE, MWINI THUPI OSADZIWA KALIKONSE



TIZIGAWO TA
M'THUPI TAMU
UBONGO, MASO NDI
MINYEWA, ZONSE
ZIKHOZA KUKHALA
MALO ABWINO
OBISALIRAPO,
KOMA TIZILOMBO TI
TILI NDI KUTHEKERA
KOLOWA MU
TIZIGAWO TA
M'THUPI MWATHU
TOSIYANASIYANA
KOMANSO MITUNDU
YA NYAMA
YOSIYANASIYANA



NGAKHALE TIZILOMBO TI TIMATHA KUPANGA USHASHA KU
CHITETEZO CHATHU, CHITETEZO CHA M'THUPI CHIMAKHALA
CHIKUGWIRABE NTCHITO KUTI TIZILOMBO TI TISAONONGE

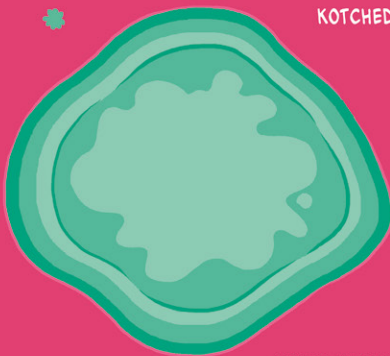
NGATI CHITETEZO CHASOKONEKERA, TIZILOMBO TI TIMAKHALA TILIBE CHIFUKWA
CHENICHENI CHOTI TIZIBISALANSO NDIPO TIMATULUKA, KUONONGA THUPI NDI
KUYAMBITSA MATENDA OOPSA OMWE AMAFUNIKA MANKHWALA KUTI ACHIZIDWE

ZOBISIKA ZOMWE ZILI MKATI MWA
TIZILOMBO TI ZIKHOZA KUTSEGULA
MAKOMO OSANGOCHIZIRA MATENDA
A TOXOPLASMOSIS OKHA AYI
KOMANSO MATENDA ENA

TIKUPEZA MAYANKHO
OTHANDIZA POPHUNZIRA
ZIWALO ZINA
ZOSIYANASIYANA ZA
TIZILOMBO TI



KACHIWALO KAMODZI
KODABWITSA NDI KACHILENDO
KA TIZILOMBO TI NDI
KOTCHEDWA APICOPLAST



KACHIWALO KA KAMAONEKA
MODABWITSA NDIPO KALI NDI
MBIRI YACHILENDO NDI
YOPATSA CHIDWI

ZIKUONEKA KUTI KACHIWALO KA
APICOPLAST KALI NDI ZINTHU
ZOFANANA NDI MA CHLOROPLAST-
MBALI IMODZI YA ZIGAWO ZA ZOMERA
ZOMWE ZIMAGWIRA NTCHITO
POPANGA ZAKUDYA KUDZERA MU
DZUWA. CHIWALO CHIMENE
CHIMAPANGITSA CHOMERA
KUKHALA CHOBIRIWIRA



NDIZOTHEKA KALEKALELO KUTI MAKOLO
A TIZILOMBO TI AMAKHALA MOYO
WOFANANIRAPO NDI ZOMERA



MKATIKATI MWA KUSINTHA, TIZILOMBO TI
TINATENGA NJIRA YOSIYANA, KUSINTHA
NKUKHALA TOXOPLASMA

NGAKHALE KALI NDI MBILI YAKALEKALE, KACHIWALO KA APICOPLAST NDIKOFUNIKA KUMOYO WA TIZILOMBO TI. NDIKOFUNIKA KUTI TIKHALE NDI MOYO POGWIRA NTCHITO YOFUNIKIRA MU KAKULIDWE, KUDZIKONZA NDI KUCHULUKANA

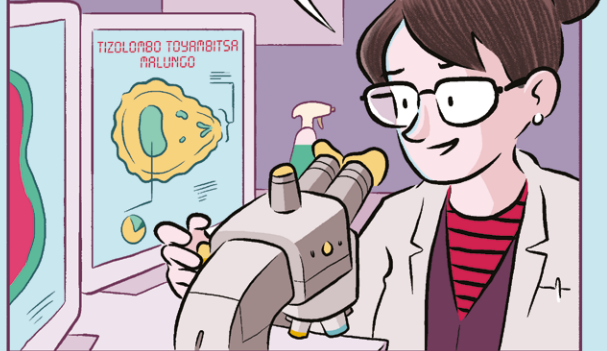
KAFUKUFUKU WAPEZA KUTI TIKHOZA KUONONGA APICOPLAST YA TOXOPLASMA NDI MANKHWALA A MBEU, KUONONGA TIZILOMBO TI NGATI UDZU KU MUNDA



POMVETSETSA MMENE APICOPLAST IMAGWIRIRA NTCHITO, KOMANSO MMENE TINGAYIONONGERE, ZINGAKHALE ZOTHANDIZA



TIKHOZA KUGWIRITSA NTCHITO UTHENGAWU POTHANA NDI TIZILOMBO TINANSO, NDI MA APICOPLAST AKEAKE. TIZILOMBO TOYAMBITSA MATENDA A MALUNGO TIKHOZANSO KUPHEDWA MOTERE POTI TILI NDI KACHIWALO KA APICOPLAST KAMENEKA.



IZI NDI ZOWME ZIMAPANGITSA MALO OGWIRIRA NTCHITO A WELLCOME CENTRE FOR INTEGRATIVE PARASITOLOGY KUKHALA OSANGALATSA

AKATSWIRI AUKADAULO WA TIZILOMBO TOSIYANASIYANA AMATHA KUGWIRIRA NTCHITO LIMODZI POPEZA NJIRA NDI UPANGIRI WATSOPANO WOFANANA WOMWE UNGAGWIRITSIDWE NTCHITO POGONJETA TIZILOMBO TI



KUYAMBIRA MALUNGO
MPAKANA KAODZERA KENAKA
TOXOPLASMOSIS, WELCOME
CENTRE NDI MALO
OGAWANILANAKO NZERU
PAKATI PA NTHITO ZATHU
ZOSIYANASIYANA. NDI
MALONSO AMGWIRIZANO
AZAUPANGIRI WA ZA TIZILOMBO
TI PA DZIKO LONSE LAPANSI.



TILI KUZUKUTA MOZAMA
TIZILOMBO TOYAMBITSA MATENDAWA
NDIPO TIKUMVETSETSA ZA TINTHU
TING'ONTING'ONO TOSAONEKA NDI
MASO TI KUPOSA KALE

KOMABE, MAFUNSO AMBIRI
OFUNIKIRA SANAYANKHIDWEBE
MOTI NTHAWI ZINA KUPEZA
ZATSOPANO ZA TIZILOMBO TI
KUMABWERETSA MAFUNSO
ENA AMBIRINSO.

TIKUFUNANSO TITAFALITSA UTHENGA WA TIZILOMBO TIMENE TI,
PODZIWIWISA ANTHU KUOPSA KWAKE NDIKUTI ANTHU AMVETSETSE ZA
SAYANSI YA TIZILOMBO NGATI TOXOPLASMA



NDEUKUTI BWANJI,
USIYA KUTHAMANGITSA
MAKOSWEZ?



MREW?



KOMABE, USIYE
KUNDISIYIRA MAKOSWE
AKUFA NGATI MPHATSO

WELLCOME CENTER FOR INTEGRATIVE PARASITOLOGY
IMAPEZEKELA KU SUKULU YA UKACHENJEDWE YA GLASGOW. NTCHITO
YATHU YAIKULU NDI KUFUFUZA ZA MMENE TIZILOMBO TOYAMBITSA
MATENDA OSIYANASIYANA TIMAGWILIRA NTCHITO MTHUPI MWA MUNTHU
KUTI TIPEZE MANKHWALA NDI NJIRA ZOTIGONJETSERA

KUTI MUDZIWE ZAMBIRI ZA NTCHITO YATHU, ONANI TSAMBA LA INTANETI
WWW.GLA.AC.UK/WCIP

KAPENA CHEZANI NAFE PA TSAMBA LA MCHEZO LA TWITTER
[@WCIPGLASGOW](https://twitter.com/WCIPGLASGOW)

TIKUTHOKOZA DR LILACH SHEINER, DR VICKIE CURTIS, NDI ONSE AMENE
ANATENGAPO GAWO POWELENGA BUKULI KUTI LIMVEKE BWINO

ZAMBIRI ZA OLEMBA BUKU LA NTHABWALI MUNGAZIPEZE PA:

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WWW.JPJHALL.NET



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Parasitology



TOXOPLASMA! TIZILOMBO TODABWITSA TIMENE TIMAPEZA MOKHALA
MU AMPHAKA, ANTHU, MAKOSWE NDI NYAMA ZINA. PAFUPI FUPI
THEKA LA ANTHU ONSE PA DZIKO LAPANSI ALI NDI MATENDA WA
KOMA SAMAPHA MWACHISAWAWA

DZIWANI ZA TIZILOMBO TOSANGALATSA TI, MMENE TIMAFALITSIRA
MATENDA NDI CHIFUKWA CHOMWE AKADAULO A ZASAYANSI
AMAKHULUPILIRA KUTI TIKHOZA KUPANGITSA MWINI THUPI ASINTHE
ZOCHITIKA

MBALI IMODZI YA NKHANI ZA TIZILOMBO ZOMWE INAWINA MPHOTO



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Parasitology

