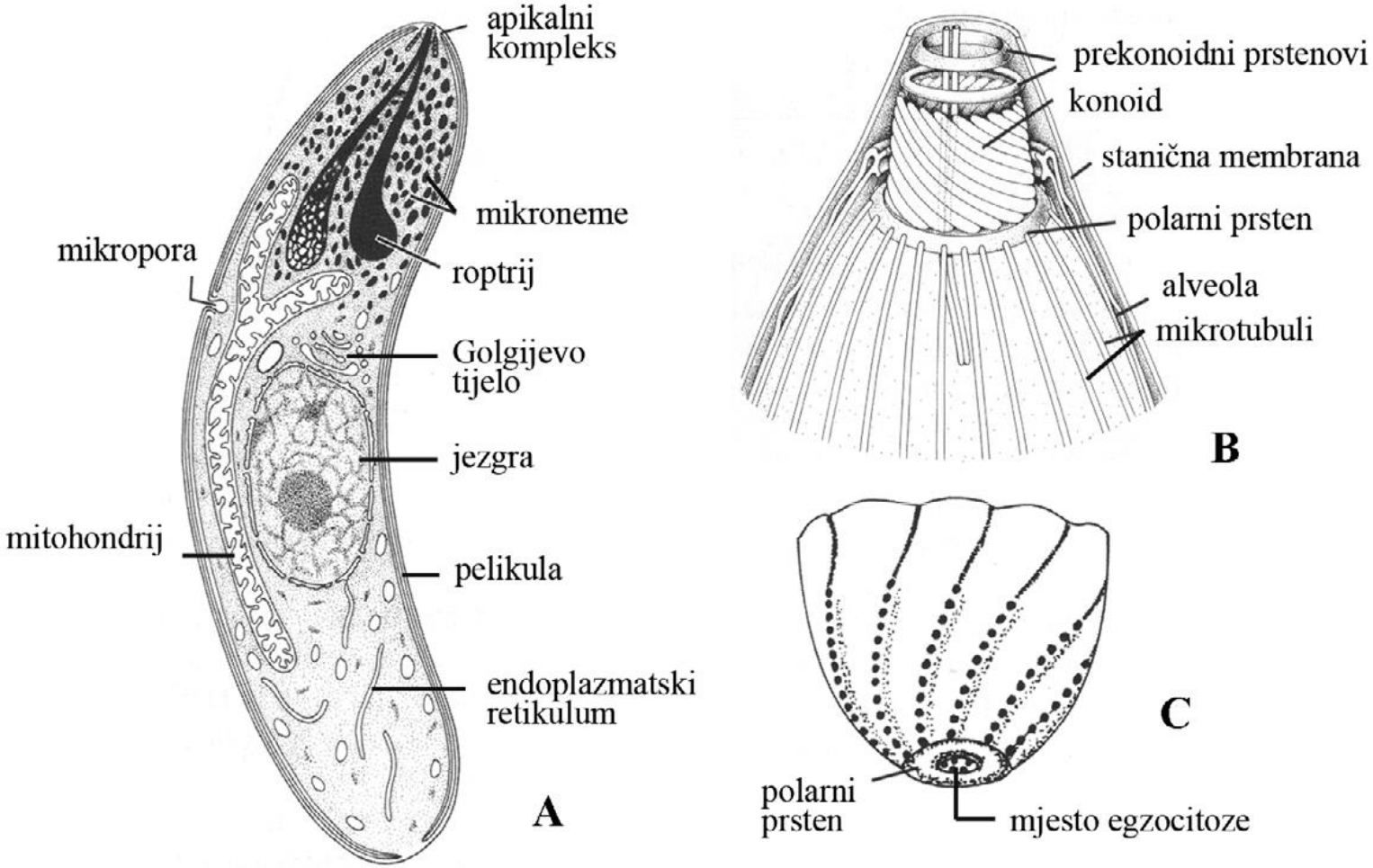
Nametničke praživotinje 2

Truskovci

Truskovci

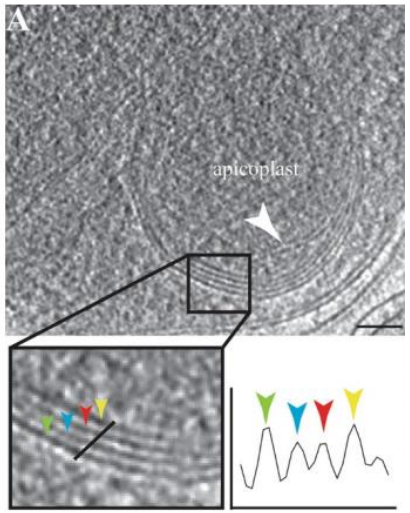
- gotovo svi nametnici



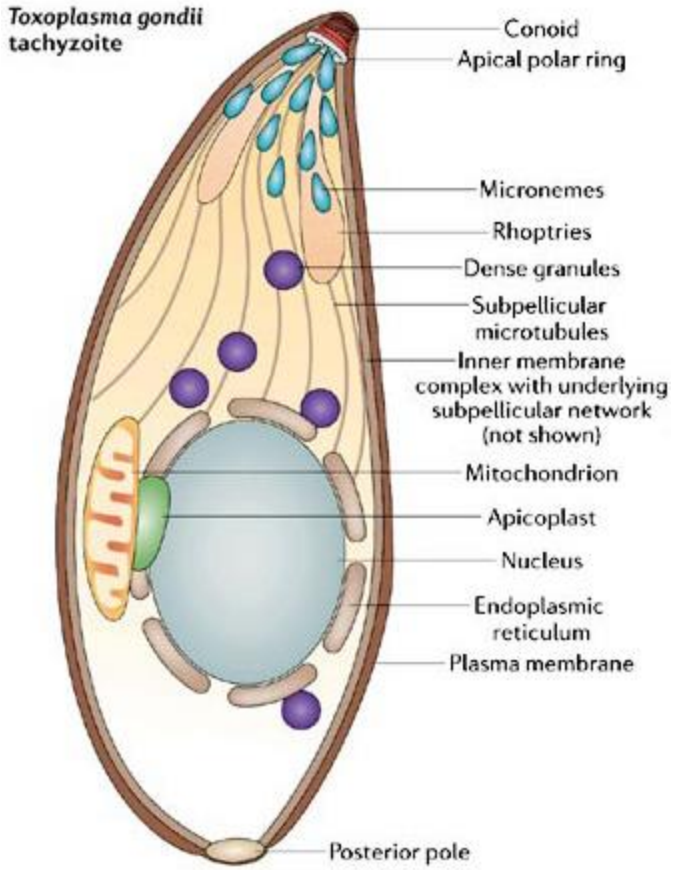
(Habdija i sur. 2021.)

Truskovci

- apikoplast



(Lemgruber i sur. 2013)



https://www.nature.com/

Truskovci

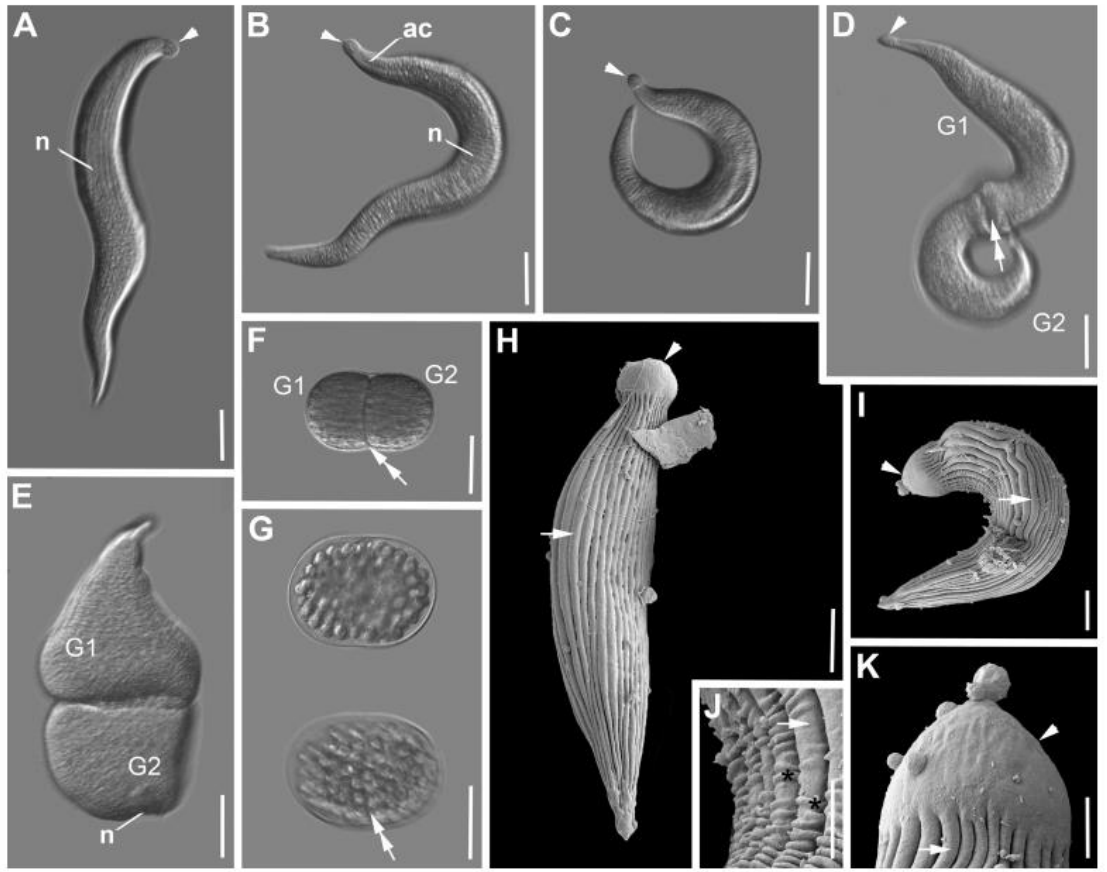
- životni cikus



Gregarinea

Gregarinea

- vjerojatno najbrojniji truskovci
- Archigregarinorida (arhigregarine) u morskim beskralješnjacima
- **mizocitoza** – isisavaju sadržaj stanice domadara
- Uglavnom nisu patogene, između komenzalizma i parazitizma?
- Mogu smanjiti vitalnost, životni vijek i izazvati smrt domadara (Johny i sur. 2007.).
- Suprotno, neka istraživanja ukazuju da povećavaju stopu rasta i povećavaju stopu preživljavanja (Valigurová, 2012).

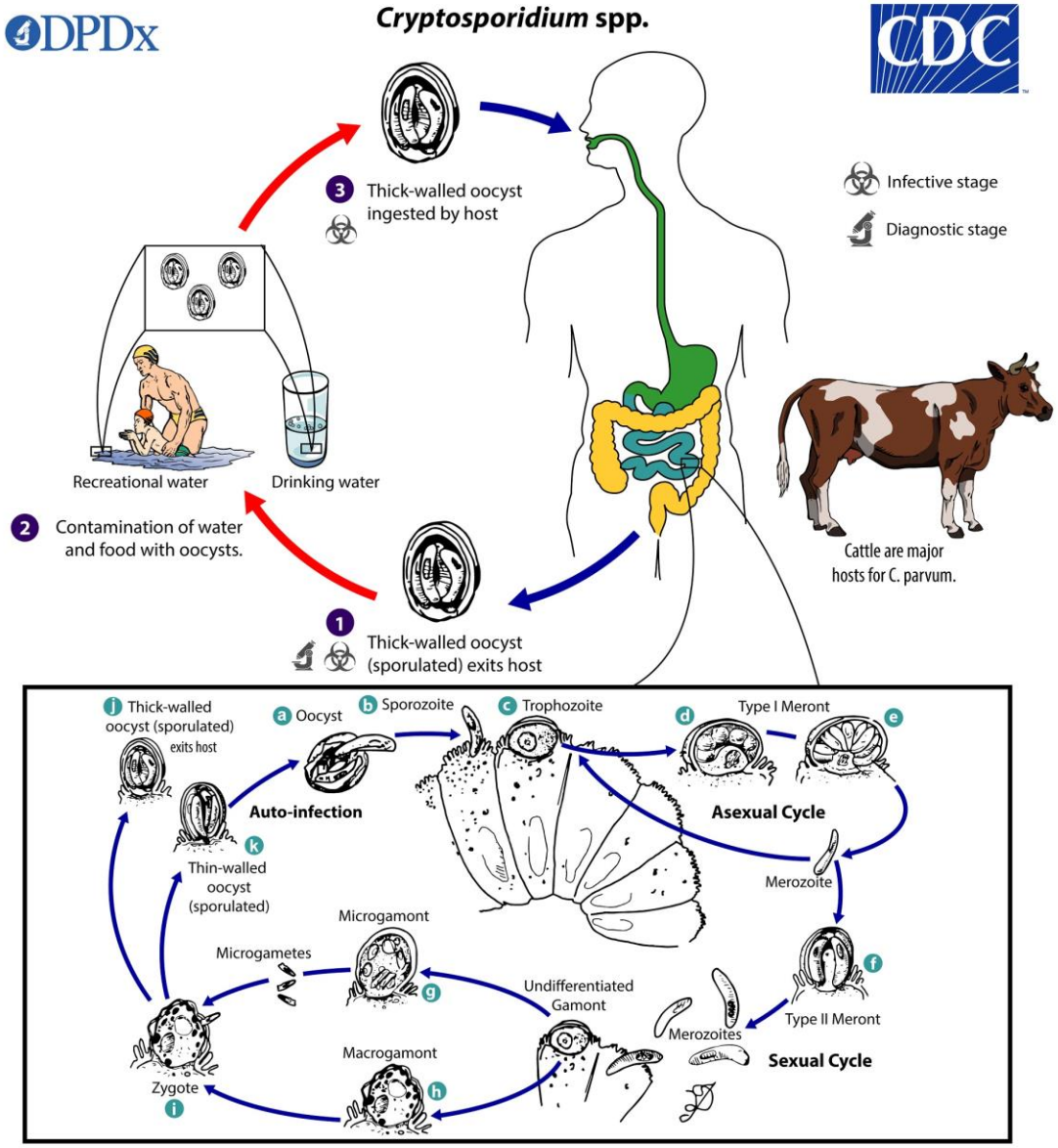


Selenidium sp. (Wakeman & Leander, 2013.)

Gregarinea

Cryptosporidium

- Uzrokuje kriptosporidiozu



www.cdc.gov

Gregarinea

- povremeno izbiju zaraze

Sixteen people ill after visiting petting farm in Edinburgh

7 May 2026

Share Save Add as preferred on Google



Ilustracija bazena, parazit cryptosporidium (u krugu)

Gregarinea

› Int J Parasitol. 2004 Jun;34(7):769-77. doi: 10.1016/j.ijpara.2004.04.001.

Complete development of Cryptosporidium parvum in host cell-free culture

N S Hijjawi [1], B P Meloni, M Ng'anzo, U M Ryan, M E Olson, P T Cox, P T Monis, R C A Thompson

Affiliations + expand

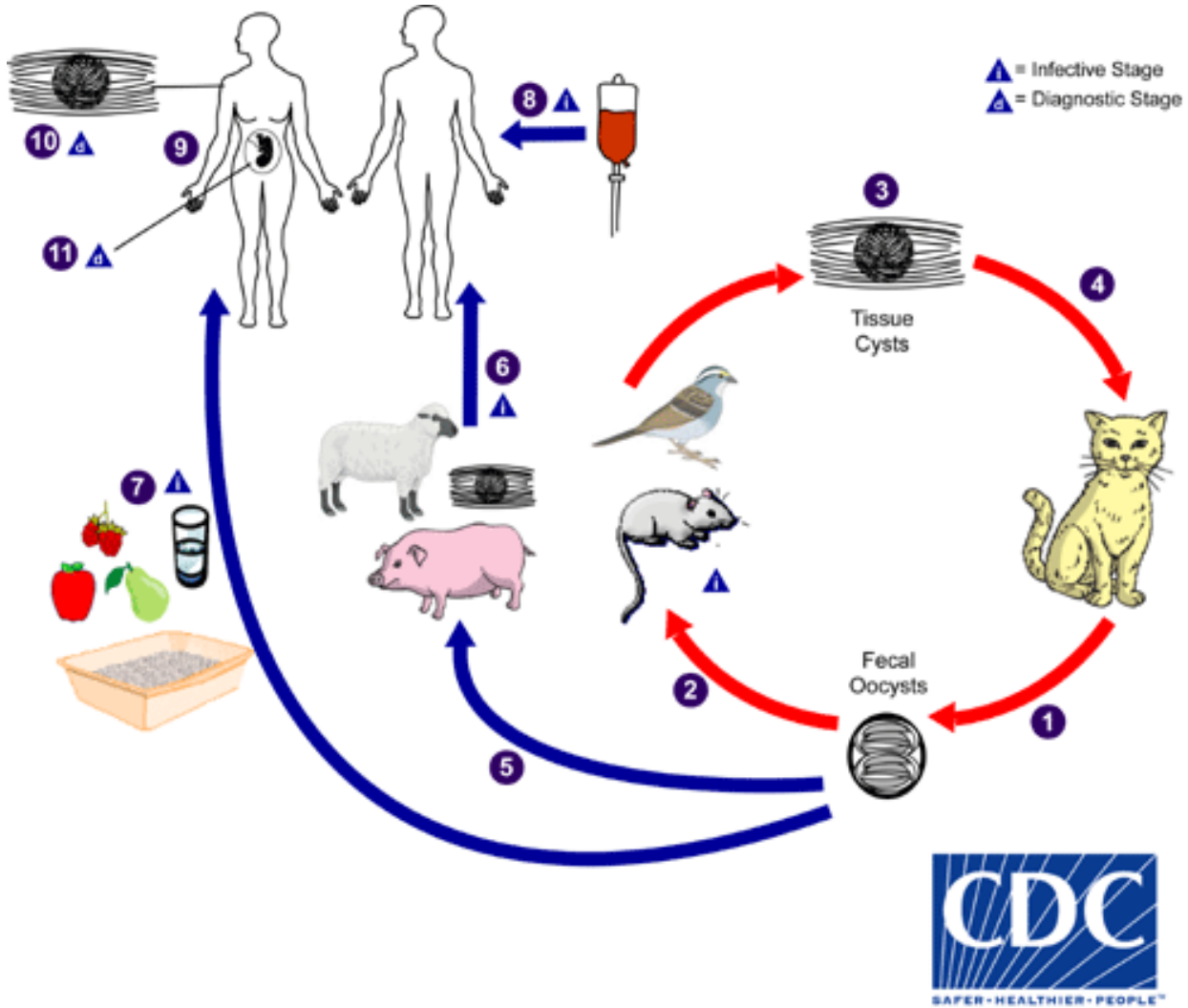
PMID: 15157759 DOI: 10.1016/j.ijpara.2004.04.001

Abstract

The present study describes the complete in vitro development of Cryptosporidium parvum (cattle genotype) in RPMI-1640 maintenance medium devoid of host cells. This represents the first report in which Cryptosporidium is shown to multiply, develop and complete its life cycle without the need for host cells. Furthermore, cultivation of Cryptosporidium in diphasic medium consisting of a coagulated new born calf serum base overlaid with maintenance medium greatly increased the total number of Cryptosporidium stages. Type I and II meronts were detected giving rise to two morphologically different merozoites. Type I meronts, which appear as grape-like clusters as early as 48 h post culture

Toxoplasma gondii

- oocista → tahizoiti ↔ bradizoiti (u tkivnim cistama)
- više putova zaraze
- akutna toksoplazmoza
- latentna toksoplazmoza
- kronična toksoplazmoza
- kongenitalna toksoplazmoza

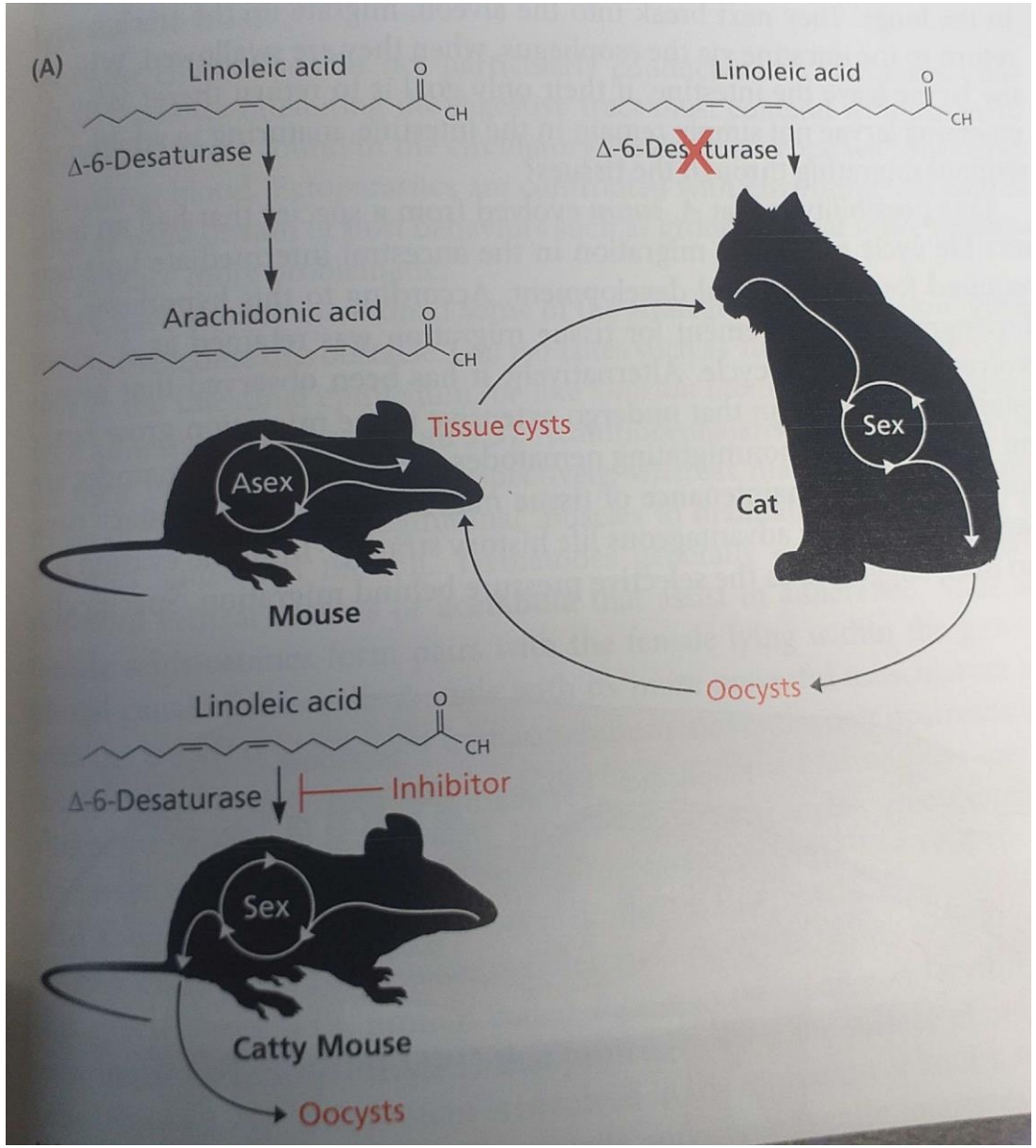


https://www.youtube.com/watch?v=Xp0h_qqBG-M

www.cdc.gov

Toxoplasma gondii

- specifičnost prema konačnom domadaru
- visoka koncentracija linolne kiseline



(Loker i Hofkin, 2022.)

Toxoplasma gondii

- Toksoplazmoza je jedna od najčešćih infekcija na svijetu u endotermnih životinja.
- u ljudi 25% do 30% seropozitivnih
- Godišnje se potencijalno u okolišu nađe 90 do 5 000 oocista/m^2 (www.abcdcatsvets.org)



https://www.youtube.com/watch?v=Xp0h_qqBG-M

www.preggoleggings.com

Toxoplasma gondii

- utjecaj na ponašanje domadara

THE ROYAL SOCIETY

doi 10.1098/rspb.2000.1182

Fatal attraction in rats infected with *Toxoplasma gondii*

M. Berdoy[1,3*], J. P. Webster[2] and D. W. Macdonald[3]

[1]*Oxford University Veterinary Services, Oxford OX1 3PT, UK*
[2]*Wellcome Trust Centre for the Epidemiology of Infectious Disease, University of Oxford, Oxford OX1 3FY, UK*
[3]*Wildlife Conservation Research Unit, Department of Zoology, University of Oxford, Oxford OX1 3PS, UK*

We tested the hypothesis that the parasite *Toxoplasma gondii* manipulates the behaviour of its intermediate rat host in order to increase its chance of being predated by cats, its feline definitive host, thereby ensuring the completion of its life cycle. Here we report that, although rats have evolved anti-predator avoidance of areas with signs of cat presence, *T. gondii*'s manipulation appears to alter the rat's perception of cat predation risk, in some cases turning their innate aversion into an imprudent attraction. The selectivity of such behavioural changes suggests that this ubiquitous parasite subtly alters the brain of its intermediate host to enhance predation rate whilst leaving other behavioural categories and general health intact. This

Toxoplasma gondii

- utjecaj na ponašanje domadara



communications biology

ARTICLE

Check for updates

https://doi.org/10.1038/s42003-022-04122-0 OPEN

Parasitic infection increases risk-taking in a social, intermediate host carnivore

Connor J. Meyer [1,2,3]✉, Kira A. Cassidy[1,3], Erin E. Stahler [1], Ellen E. Brandell[1], Colby B. Anton[1], Daniel R. Stahler[1] & Douglas W. Smith[1]

Toxoplasma gondii

Institute of Parasitology, Biology Centre CAS
Folia Parasitologica 2025, 72: 005
doi: 10.14411/fp.2025.005

Folia Parasitologica
http://folia.paru.cas.cz

Special Issue on Toxoplasmosis OPEN ACCESS

Thirty years of studying latent toxoplasmosis: behavioural, physiological, and health insights

Jaroslav Flegr

The Ig Nobel Prizes: Science's Silliest Research

2014. for “investigating whether it is mentally hazardous to own a cat.”



Toxoplasma gondii

- **Latentna toksoplazmoza utječe na niz sustava u ljudi, a učinak ovisi o spolu i Rh faktoru.**
- **povećava vjerojatnost razvoja niza drugih patoloških stanja**
- **Primjeri:**

  1. Živčani sustav, mozak i kognitivne funkcije

  •promjena u metabolizmu i aktivnosti dopamina;
  •produljenje vremena reakcije na podražaje;
  •slabijim rezultati na testovima psihomotornih sposobnosti;
  •povećani rizikom od prometnih nesreća.

  2. Psihičko zdravlje i ponašanje

  •shizofrenija (povećana učestalost infekcije među oboljelima);
  •opsesivno-kompulzivni simptomi;
  •anksioznost;
  •depresivni simptomi

  3. Endokrini sustav i reprodukcija

  Hormonalne promjene:
  •povećana koncentracija testosterona kod zaraženih muškaraca;
  •smanjena koncentracija testosterona kod zaraženih žena

Plasmodium spp.

P. falciparum

P. malariae

P. vivax

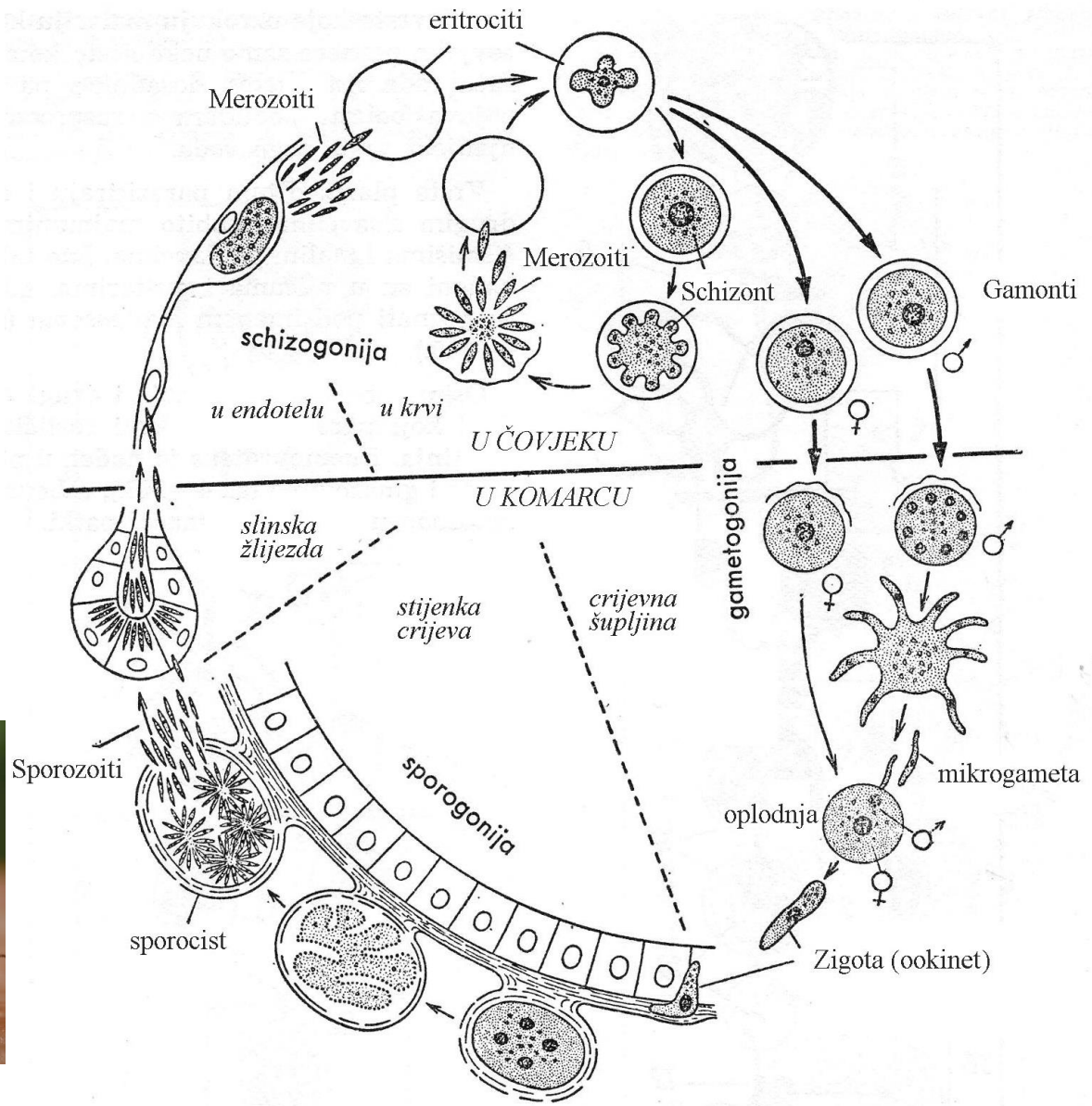
P. ovale

P. knowlesi



Anopheles gambiae

www.britannica.com



Razvoj krvotruskovca *Plasmodium* sp.

Plasmodium falciparum

- sekvestracija eritrocita
- blokira cirkulaciju – cerebralna malarija
- promjena spojeva koje luči oboljeli

Dijagnoza:

- krvni razmaz
- brzi antigenski testovi
- PCR

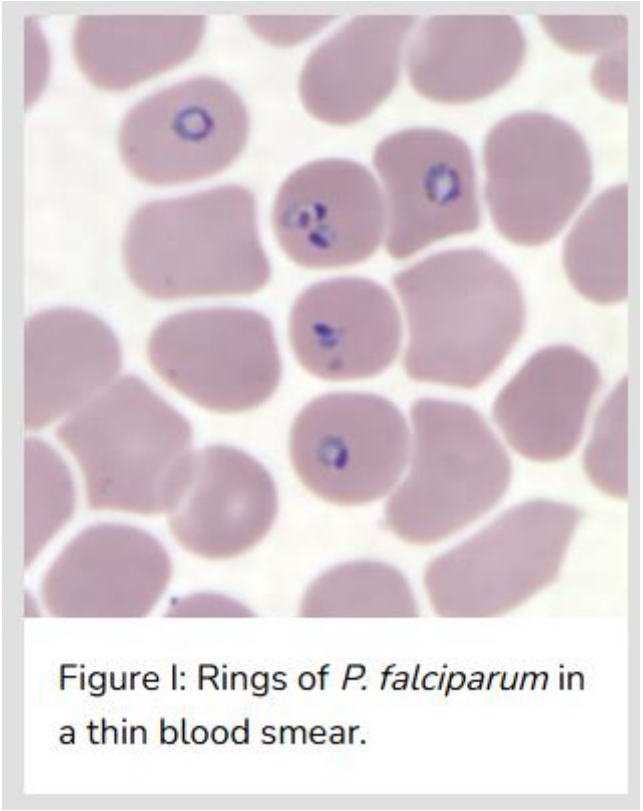


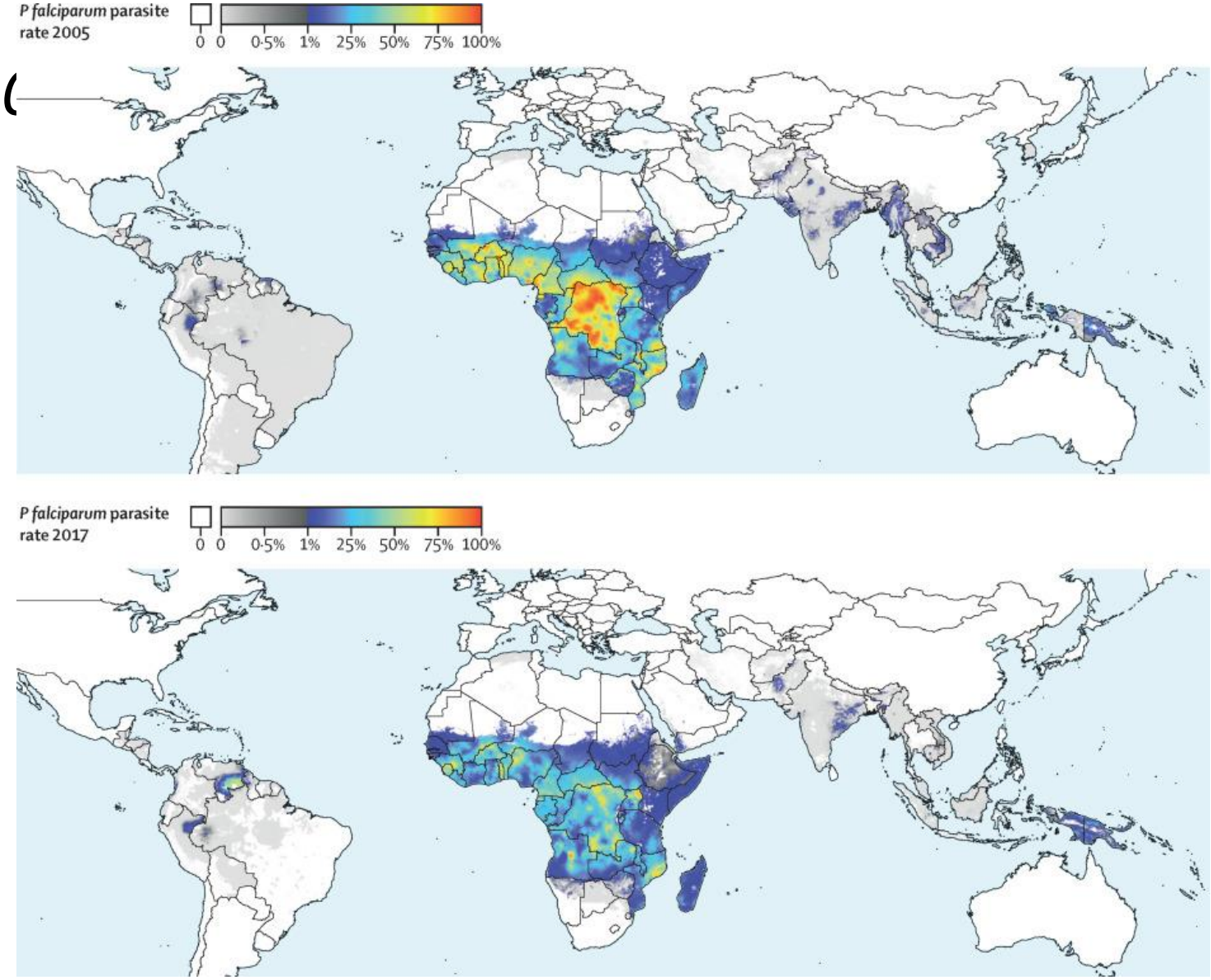
Figure I: Rings of *P. falciparum* in a thin blood smear.

www.cdc.gov

Liječenje:

- antimalarici (kombinirane terapije temeljene na artemisininu, klorokin)

Plasmodium falcipa

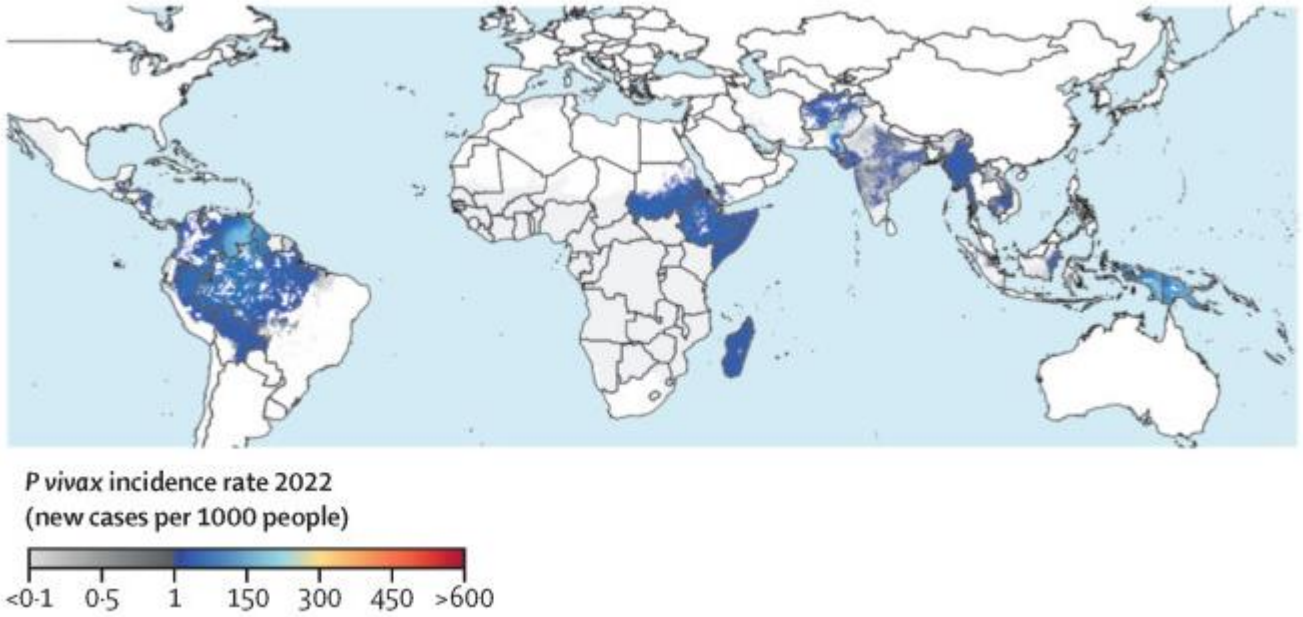


Spatial distribution of age-standardised *P falciparum* parasite $rate_{2–10}$ in 2005 (top) and 2017 (bottom) (Weiss i sur. 2019)

Plasmodium spp.

- *P. vivax i P. ovale* stvaraju hipnozoite

- *P. vivax* treba Duffy antigen na eritrocitima.
- 50% ljudi u zapadnoj Africi nemaju taj antigen (Loker i Hofkin, 2023) – rezistencija na malariju



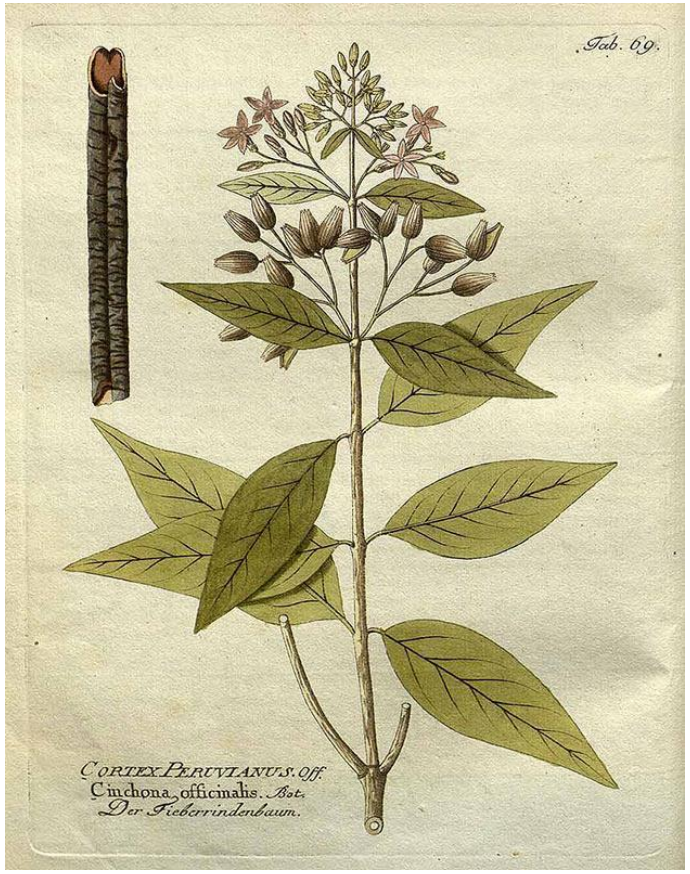
Plasmodium vivax burden maps for 2022, showing all-age clinical incidence rate (Weiss i sur. 2025)

Plasmodium spp.

Utjecaj malarije na gensku strukturu ljudi:

- Srpasta anemija
- Favizam (G6PD deficijencija)

Jezuitska kora ili prah Jezuita



Cinchona officinalis - kininovac



Urban VIII

Plasmodium knowlesi

- Južnoistočna Azija
- „dnevna malarija”



https://pixnio.com/

Hipoteza Crvene kraljice

- „Now, here, you see, it takes all the running you can do, to keep in the same place. „

- Antigenske varijacije
- Rezistencija na lijekove

- Malarija ostaje jedan od najjačih selekcijskih pritisaka na ljudski genom.

Malarija na Brijunima i Robert Koch

- *„Some people and even whole populations in endemic areas remain free of malaria and must be more or less immune. I did everything I could to examine any black person from the coastal area with fever, but virtually never found malaria parasites. However, …the imported labour people from China in Mohoro, or Indians in Dar es Salaam. Among the latter I studied a music band of 17 members, of whom 6 got tropical malaria! On the other hand, Indians who have settled for years along the East-African coast, remain quite healthy*.” (zapisi Roberta Kocha iz 1898. s puta po Tanzaniji, iz Verhave, 2022.)

Malarija na Brijunima i Robert Koch

- Paul Kupelwieser – vlasnih Brijuna početkom 20. stoljeća

- *„The malaria cases so far confirmed and treated with quinine is 63/383 or 16.4%. Most of them continued using quinine for three months and therefore it became important for me to convince myself about the result of the course. Immediately after arrival we also arranged to study the malaria-ridden coastal villages. Stignano 8.3% malaria diseased people, Fasana 6.8% and Peroi only 1.4%.”* (Kochovi zapisi iz travnja 1901., iz Verhave, 2022.)
- „The Brioni islands are now free of malaria.„ (Kochovi zapisi iz lipnja 1901., iz Verhave, 2022.)



(Verhave, 2022.)

Suzbijanje malarije gambuzijom

- nedostatak kinina u Istri pod talijanskom upravom 1920-ih (Radošević, 2013.)
- petrolej, pariško zelenilo (bakrov (II) acetoarsenit)





Slika 4. Skupna fotografija stručnog i pomoćnog osoblja uključenog u larvicidnu antimalarijsku kampanju na Rovinjštini. Mrežicama se provjeravao broj ličinki komaraca, a ručnim pumpama posipalo pariško zelenilo (izvor: Arhiva Centra za povijesna istraživanja – Rovinj, dar obitelji Sella. Autor: Massimo Sella.)

(Radošević, 2013.)

Malarija u Hrvatskoj

- Iskorijenjena 1964. godine
- Javlja se samo kao „uvezeni” slučajevi
- 1987.-2006.: 201 slučaj (80% iz Afrike, 4 vrste roda *Plasmodium*)

  70% pomorci, ostalo radnici u drugim zemljama i turisti

  (Perić, 2009.)

Haplosporidium pinnae

- spada u Rhizaria
- jedan od uzročnika masovnog pomora plemenitih periski (*Pinna nobilis*)
- kombinacija *H. pinnae,* bakterije i virusa uz visoke temperature mora
- *H. pinnae* u vezivnom tkivu i probavnom sustavu



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