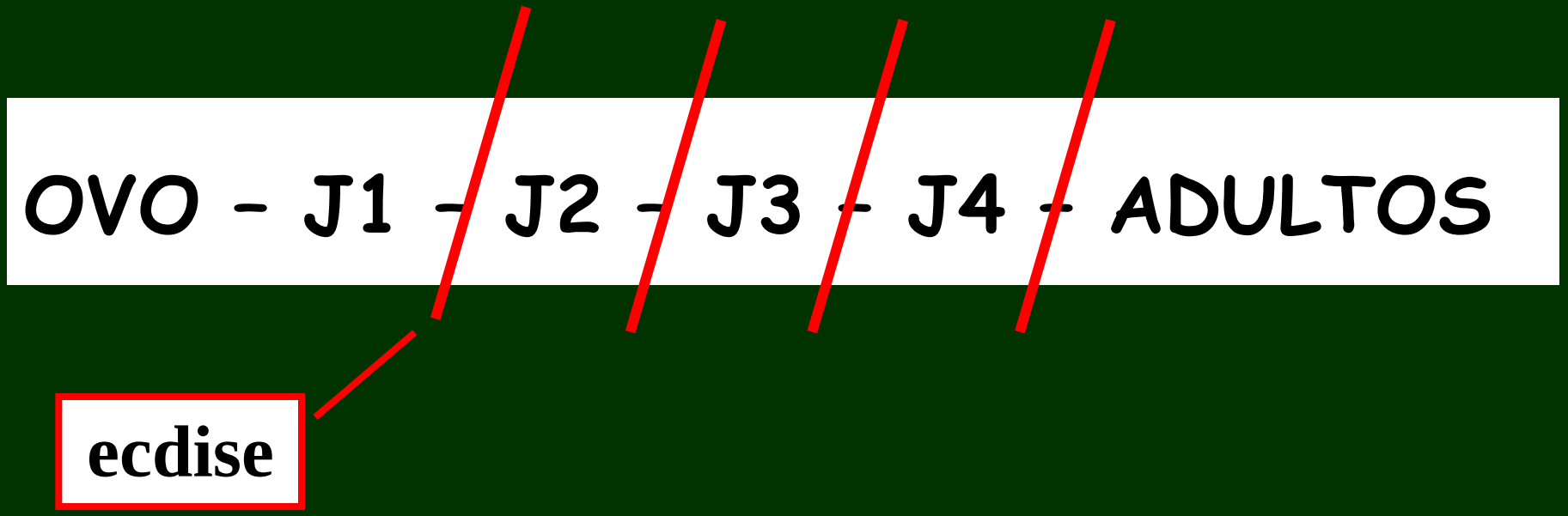
NEMATODA

AULA PRÁTICA

NEMATÓIDES PARASITAS DE PLANTAS

CICLO BIOLÓGICO



J = JUVENIL

Nas espécies mais importantes de nematóides fitoparasitos:

J1 ocorre dentro do ovo.

A primeira ecdise também ocorre dentro do ovo.

Quem sai do ovo é J2.

Para os nematoides de vida livre e parasitas de animais:

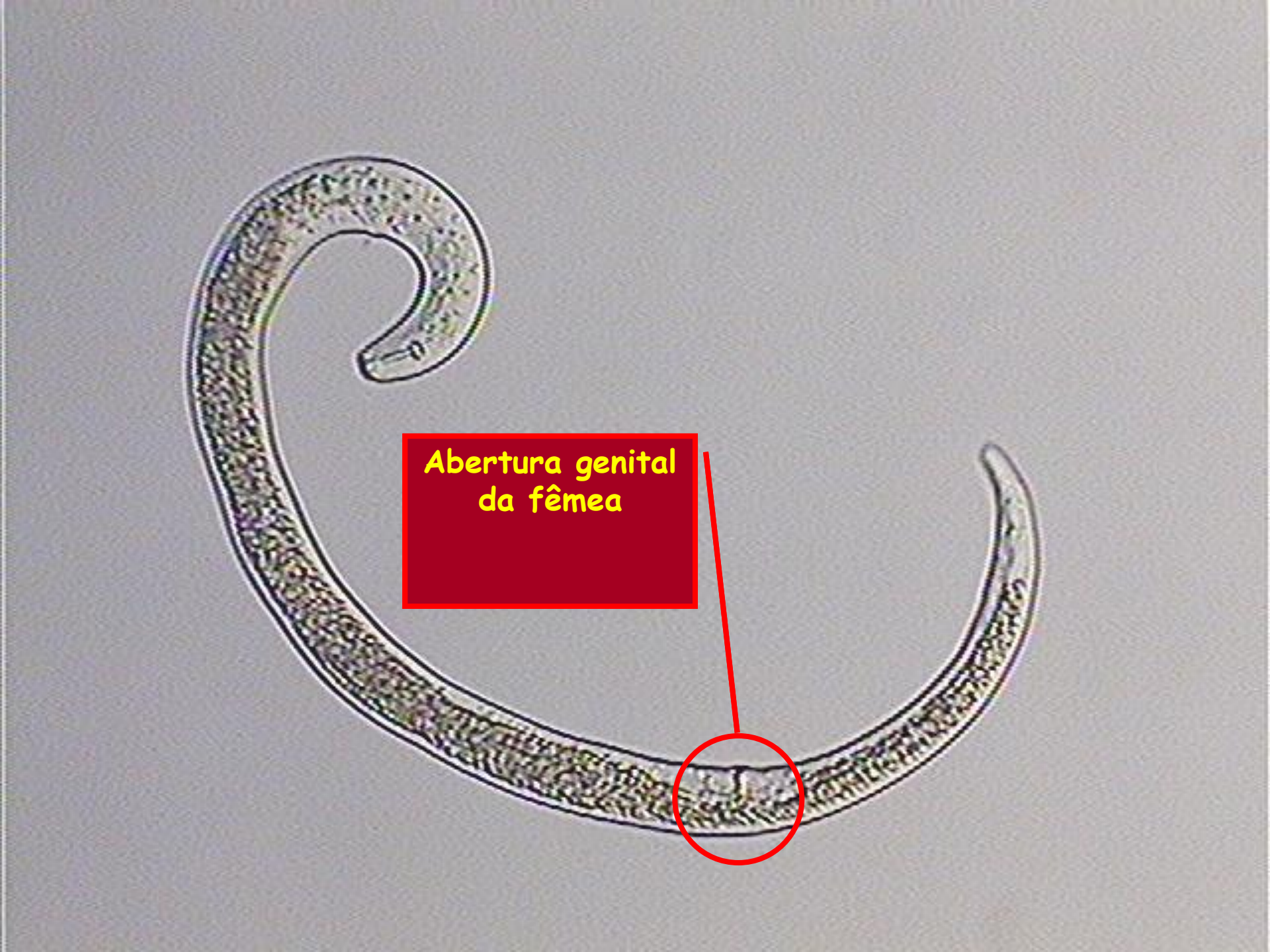
a eclosão é de J1.

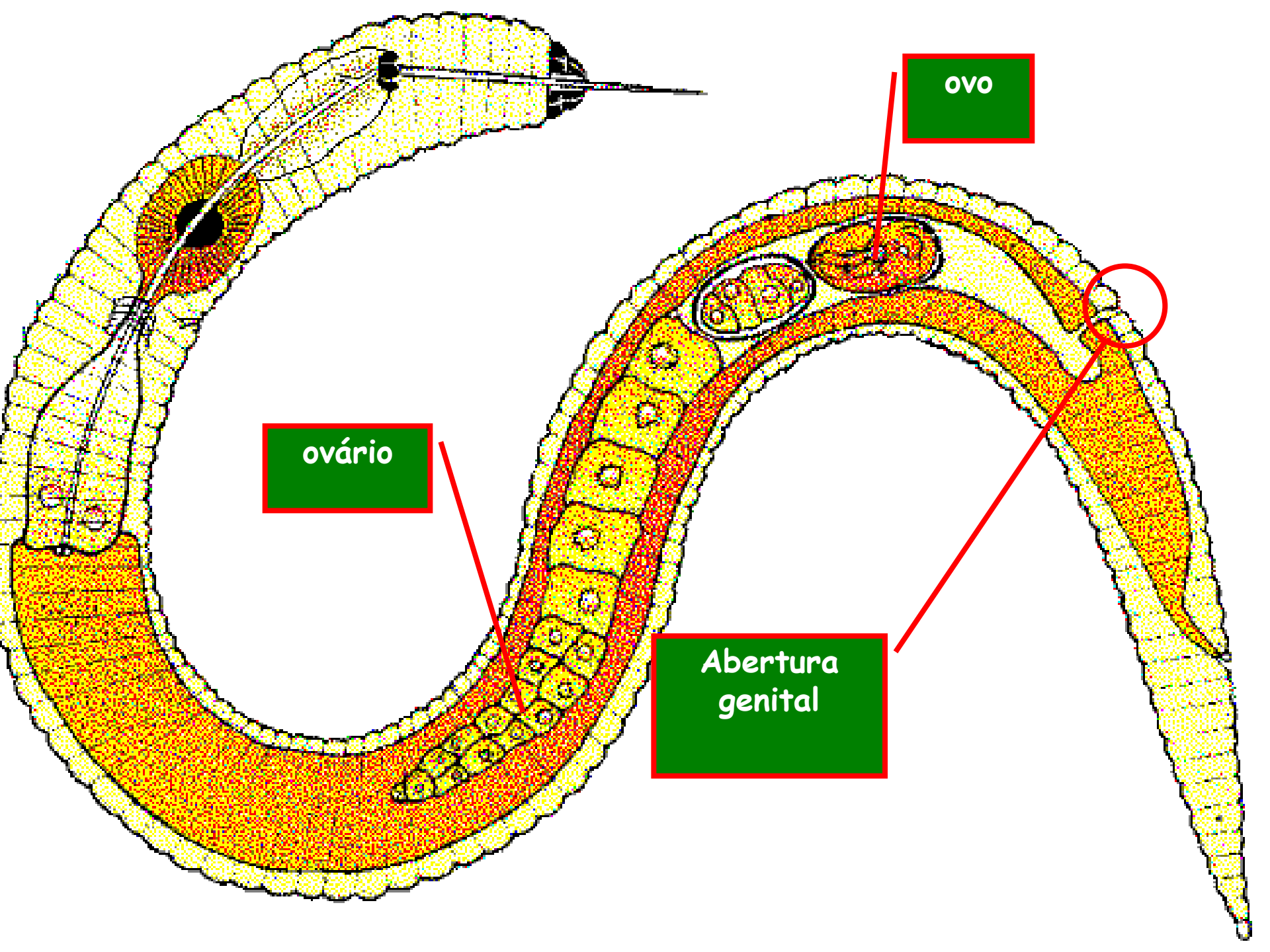
REGIÃO GENITAL DE FÊMEAS E MACHOS

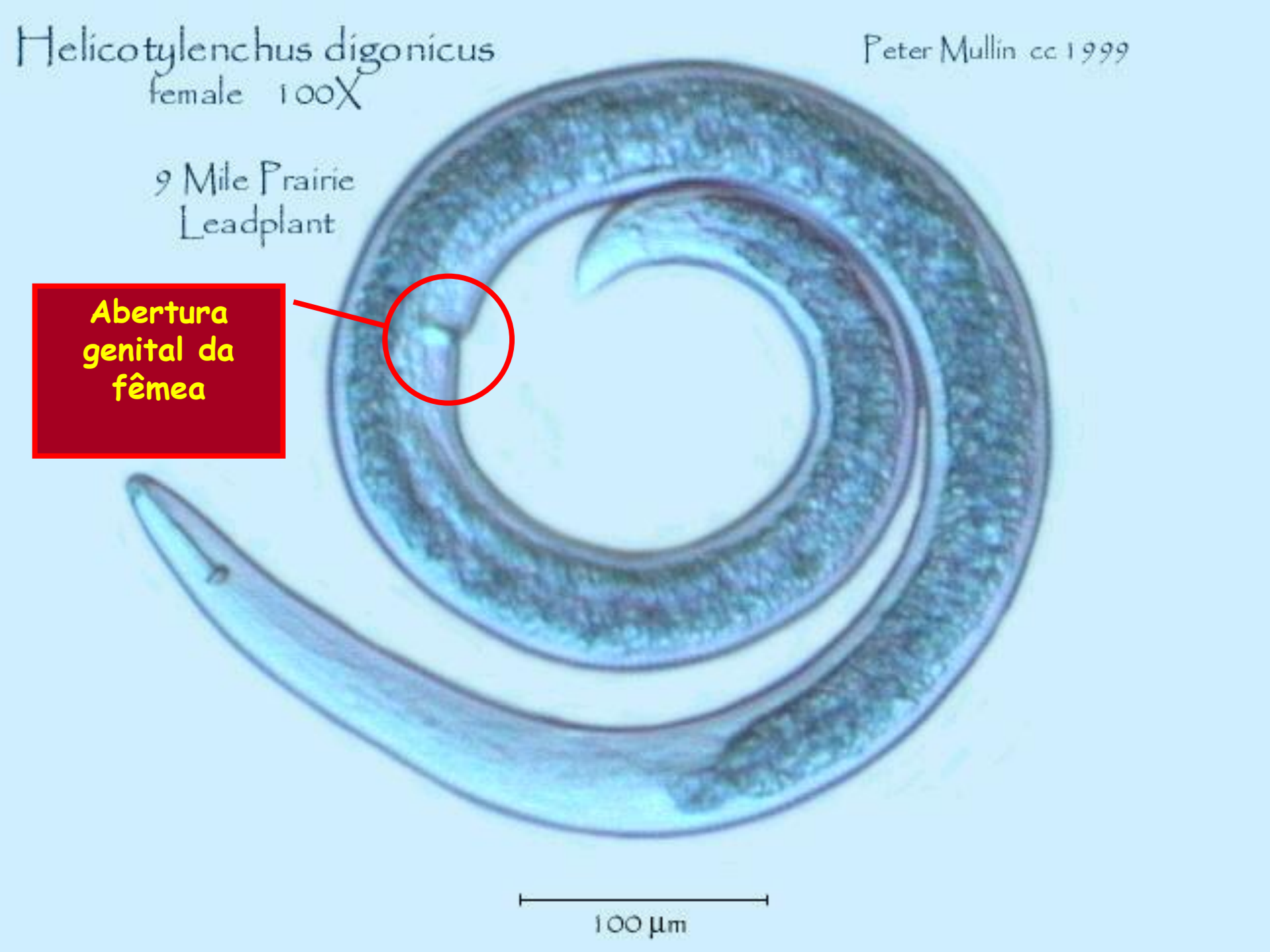
Radopholus similis
Bananeira

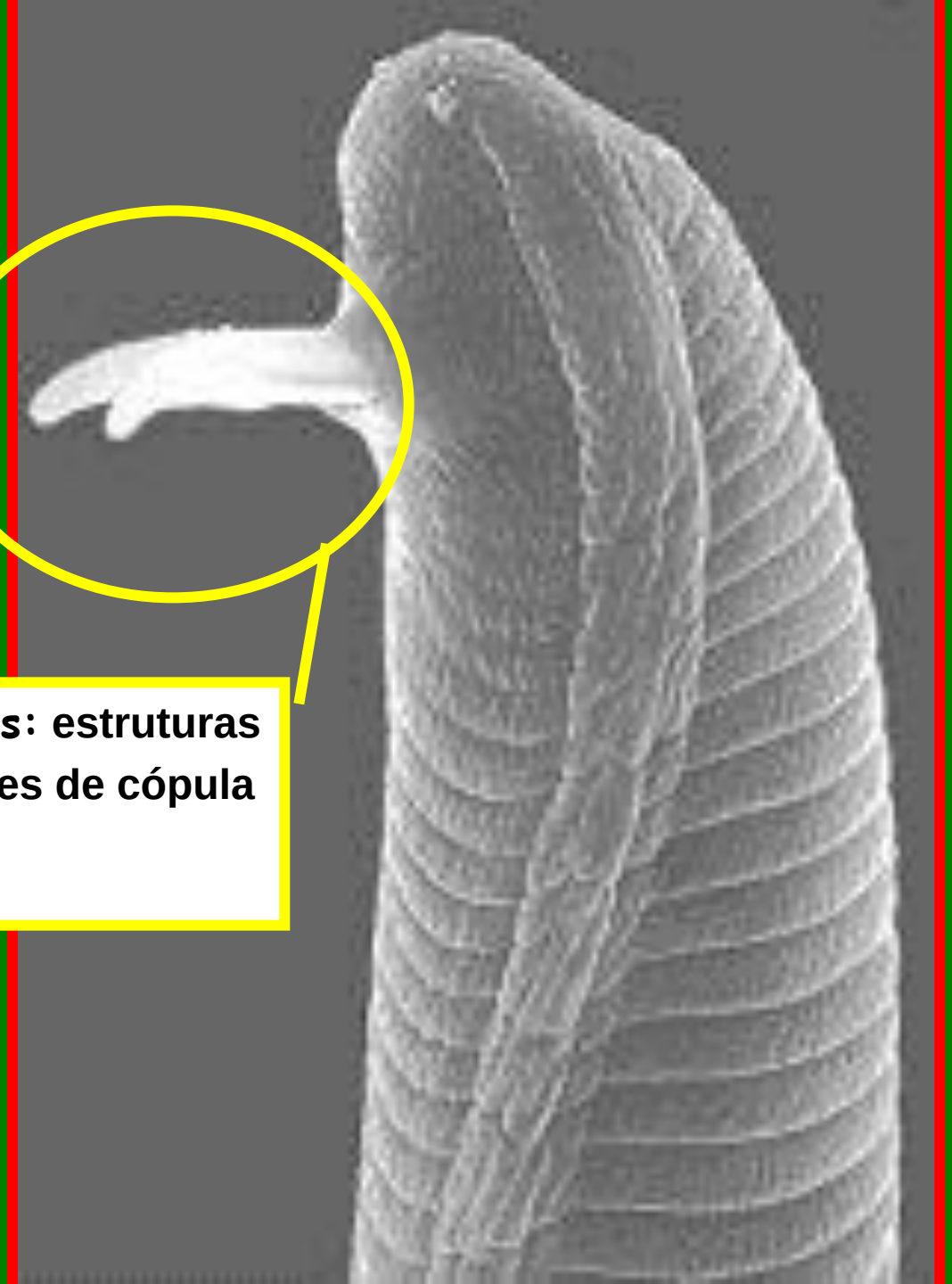
Radopholus similis
Bananeira

Radopholus similis
Bananeira


Abertura genital
da fêmea

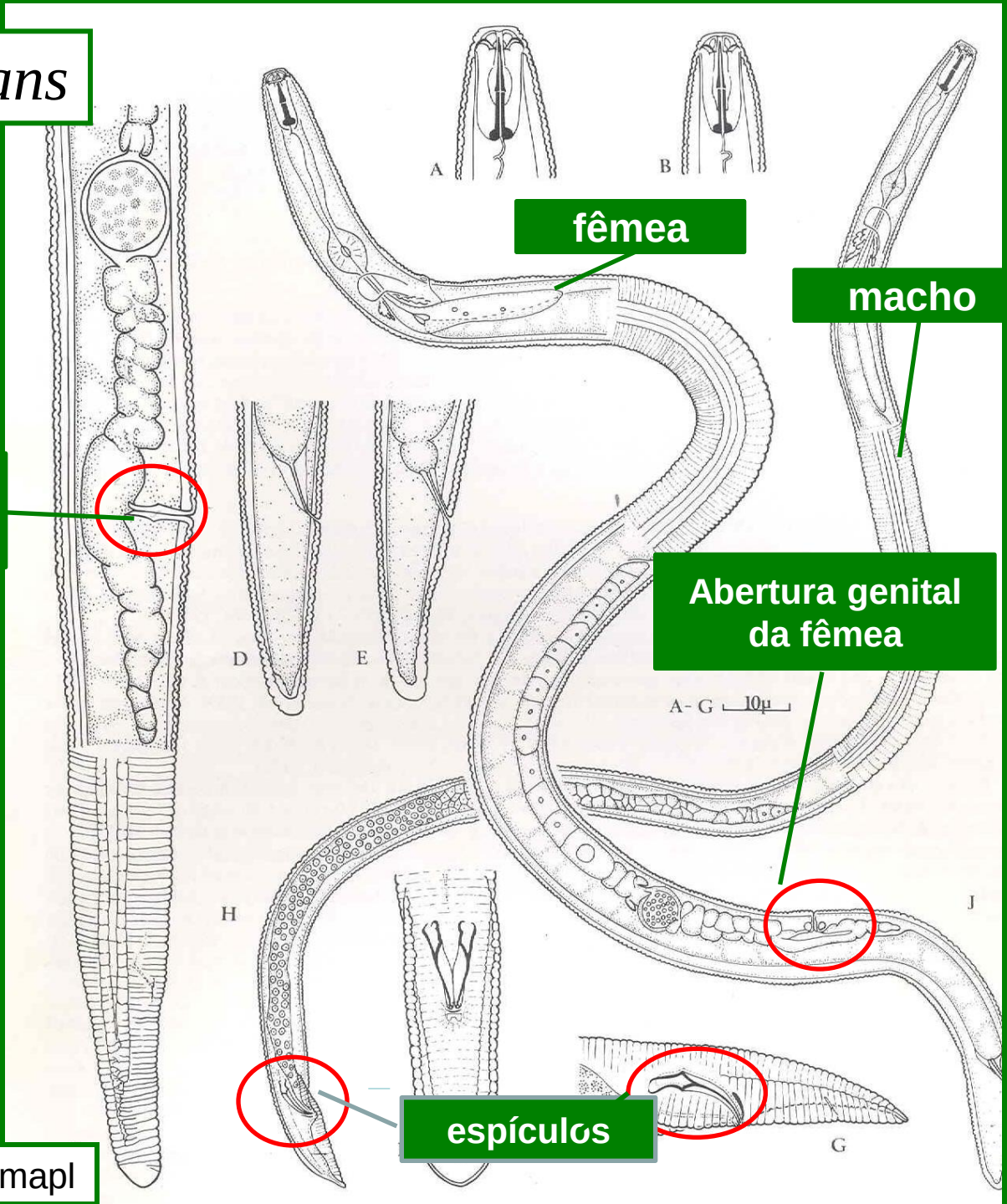

ovo
ovário
Abertura genital


Helicotylenchus digonicus
female 100X
Peter Mullin cc 1999
9 Mile Prairie
Leadplant
Abertura genital da fêmea
100 µm

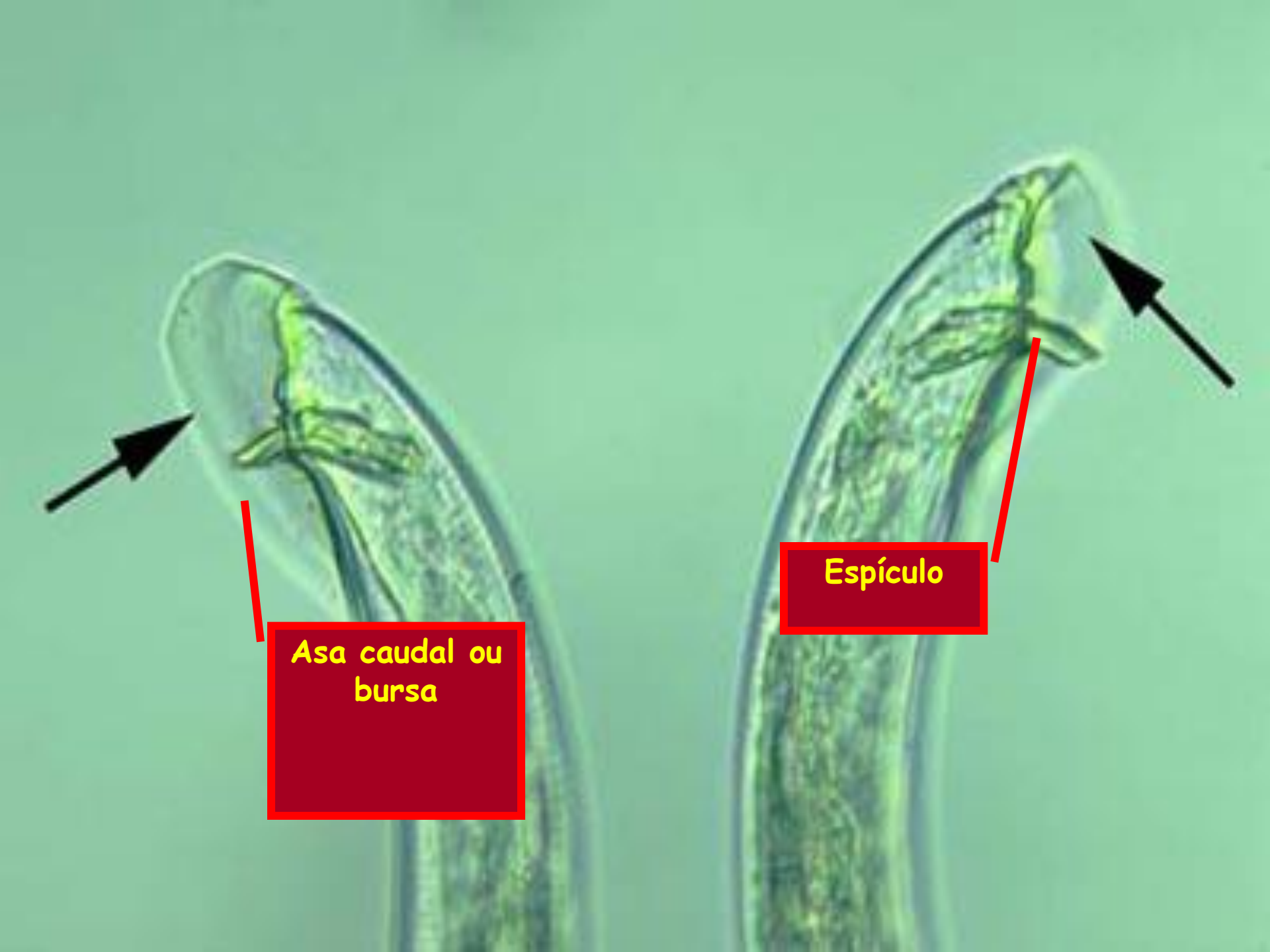


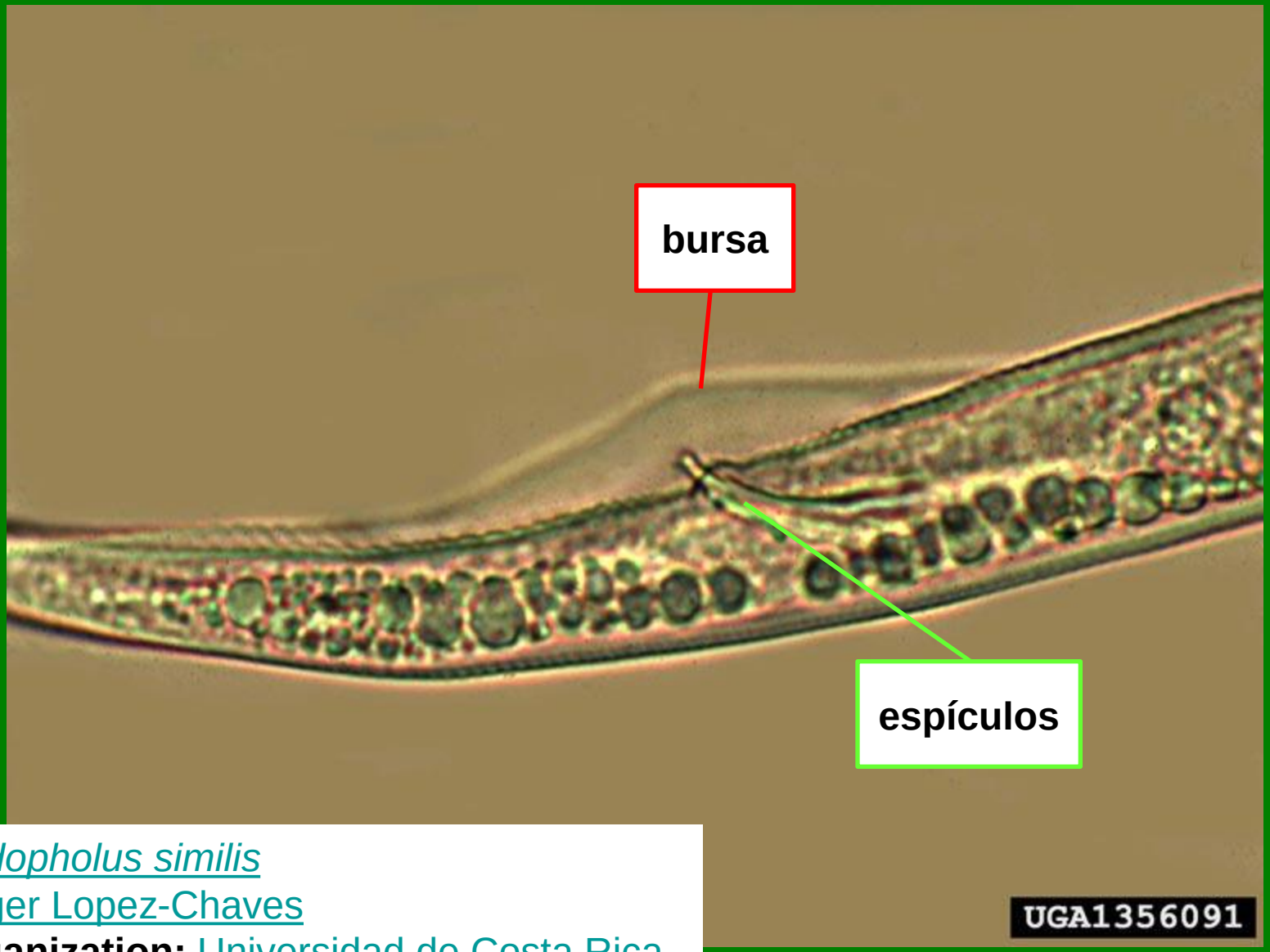
Espículos: estruturas auxiliares de cópula

Pratylenchus penetrans



http://plpnemweb.ucdavis.edu/Nemapl


Asa caudal ou bursa
Espículo



Radopholus similis
Roger Lopez-Chaves
Organization: Universidad de Costa Rica

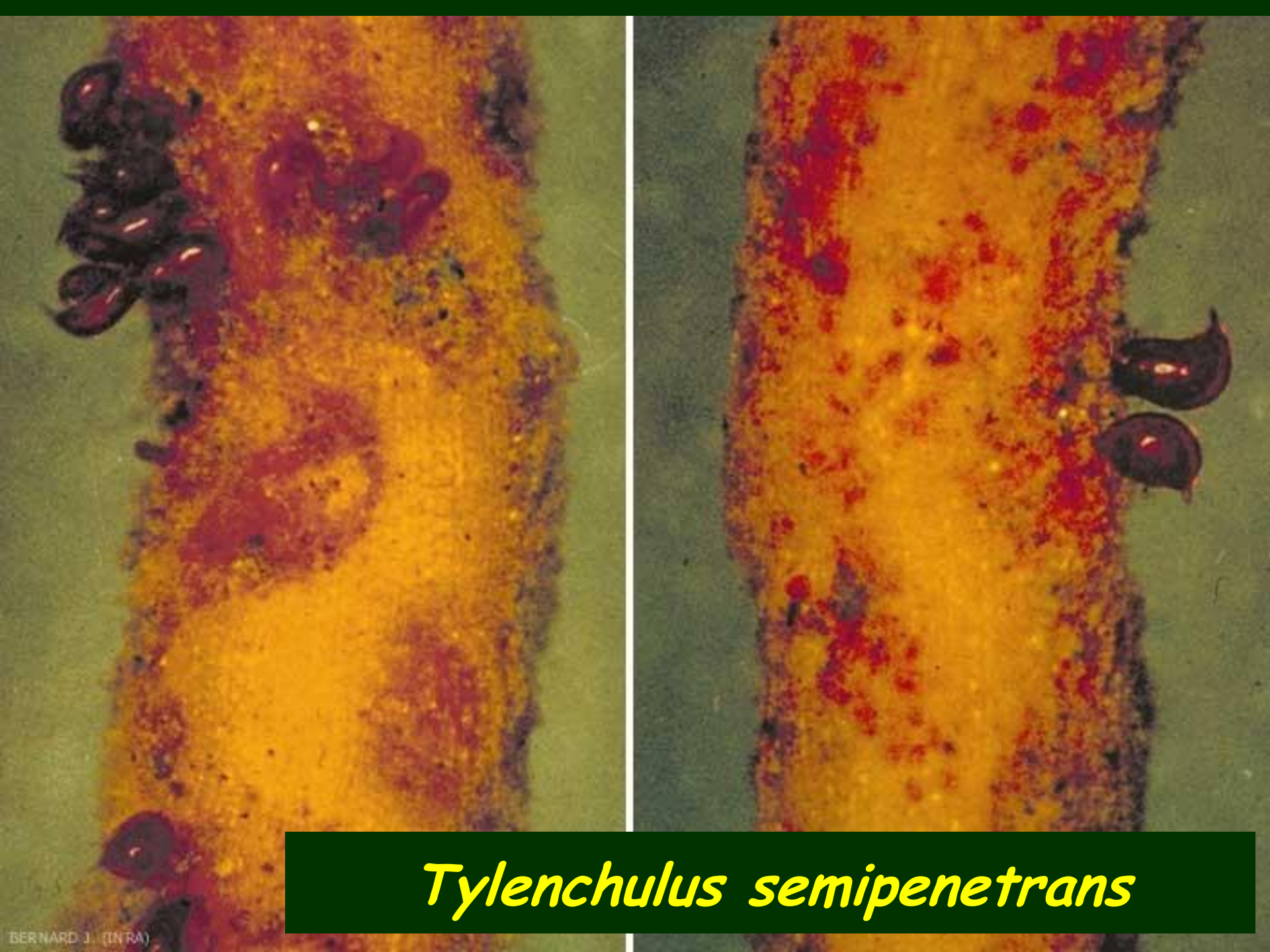
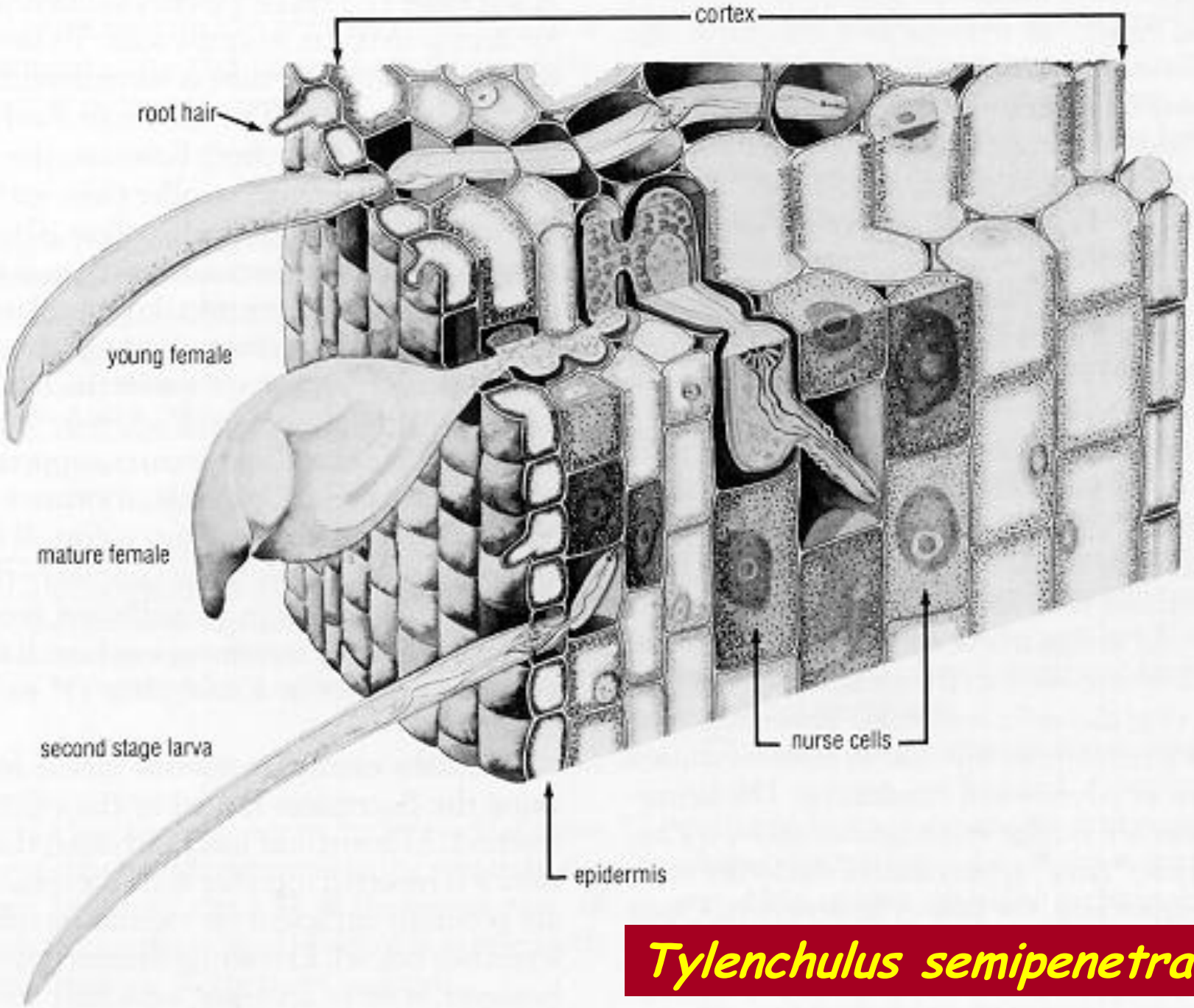

Tylenchulus semipenetrans
BERNARD J. (INRA)

Foto: Bridge J.; http://ecoport.org/PDB/000000/737.jpg



Tylenchulus semipenetrans

Alimentação no córtex radicular

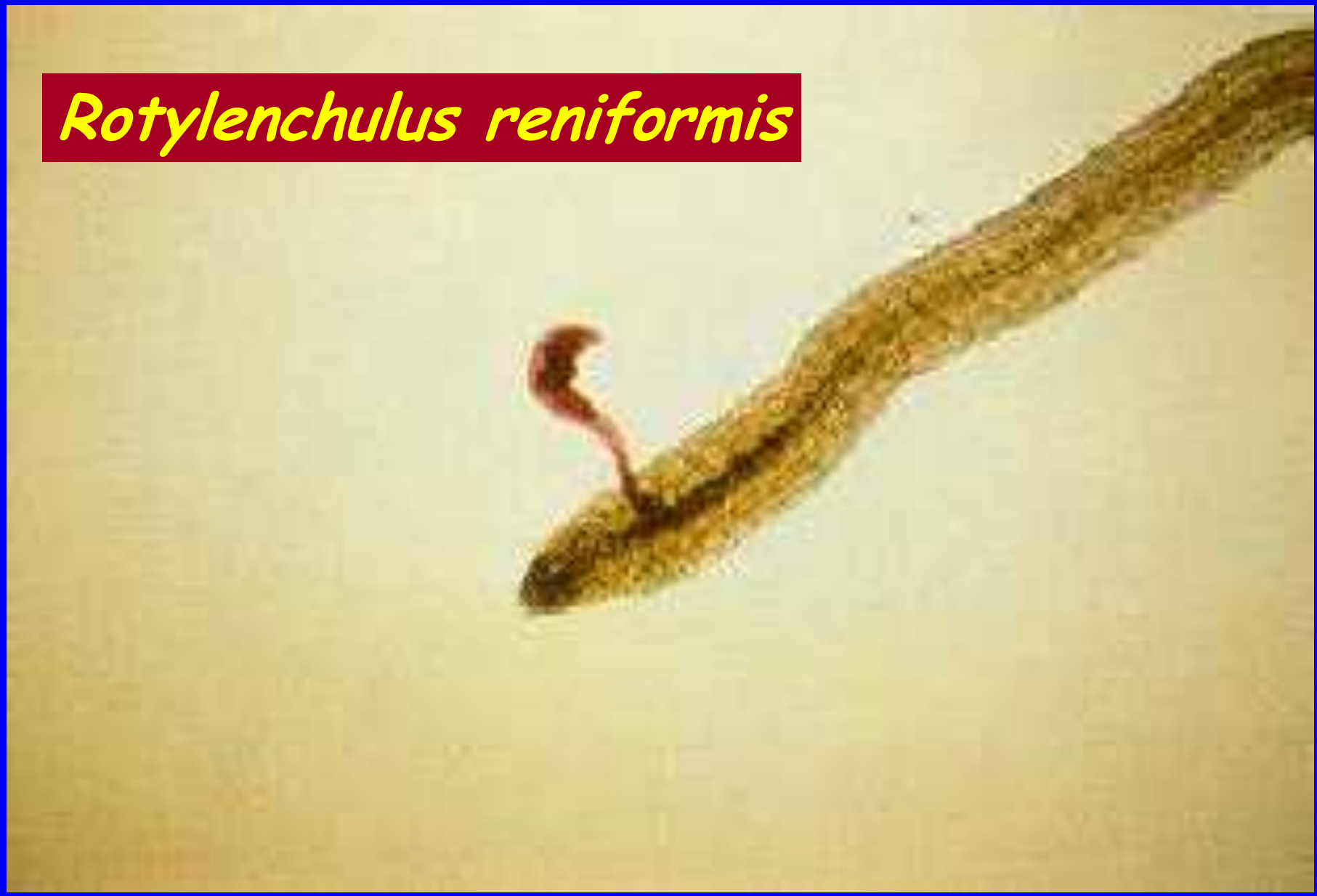
Tylenchulus semipenetrans

Tylenchulus semipenetrans

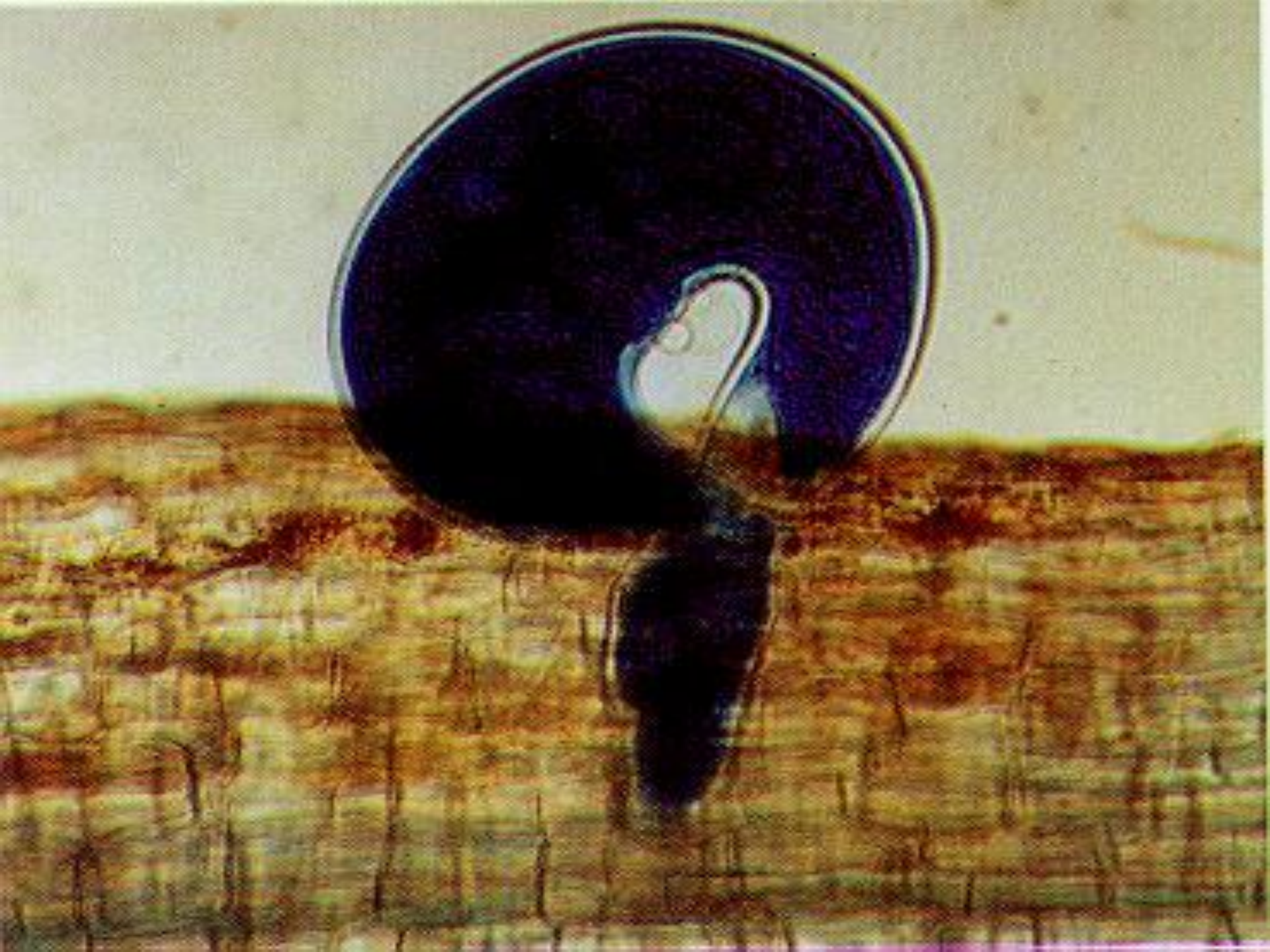
Charles S. Papp, CDFA
http://plpnemweb.ucdavis.edu

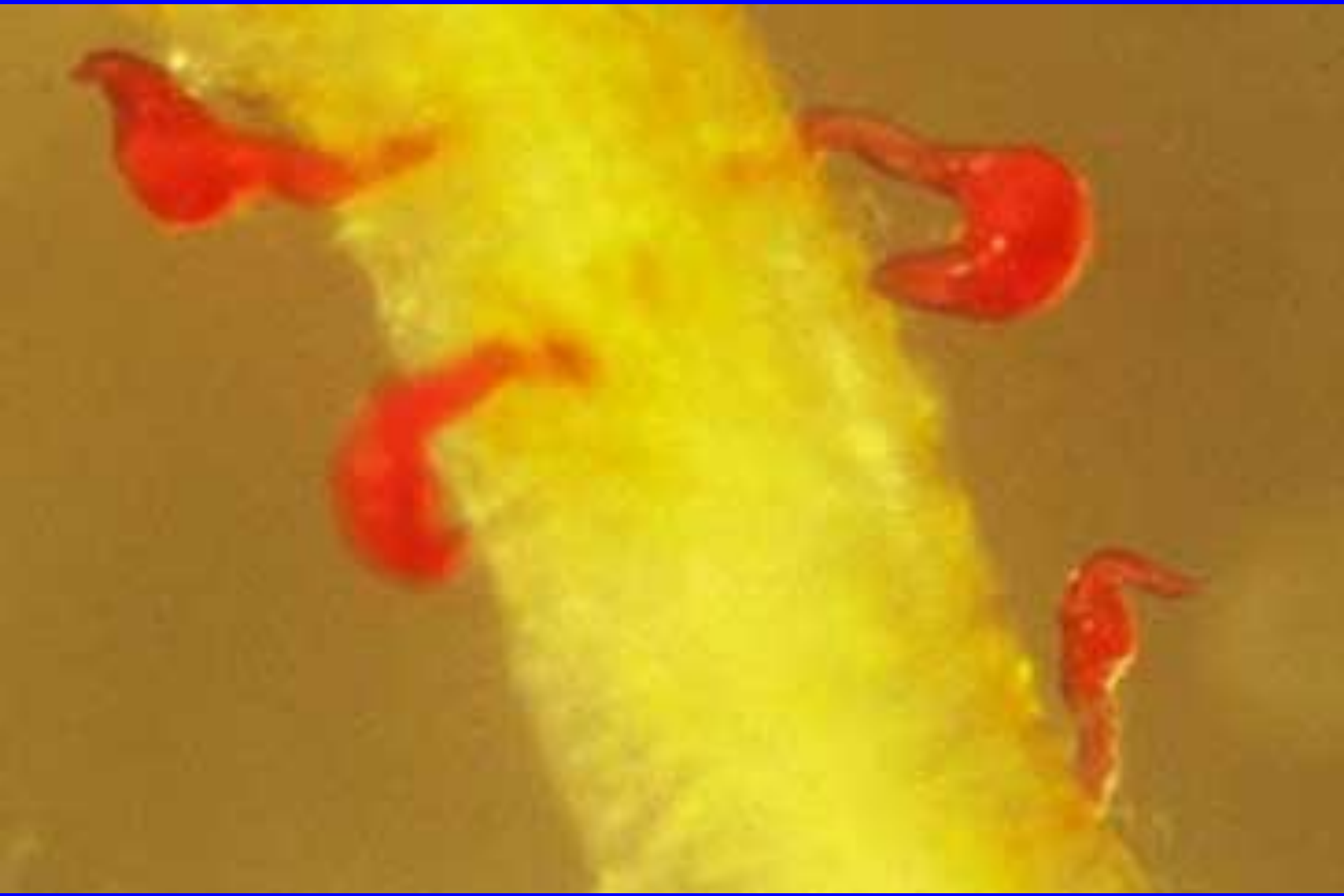
Foto: Bridge J.; http://ecoport.org/PDB/000000/737.jpg

Rotylenchulus reniformis



http://www.cdfa.ca.gov/phpps/PPD/nematology/research.html





Juvenis e macho no solo

Fêmea imatura penetra parcialmente na raiz e engorda com o tempo

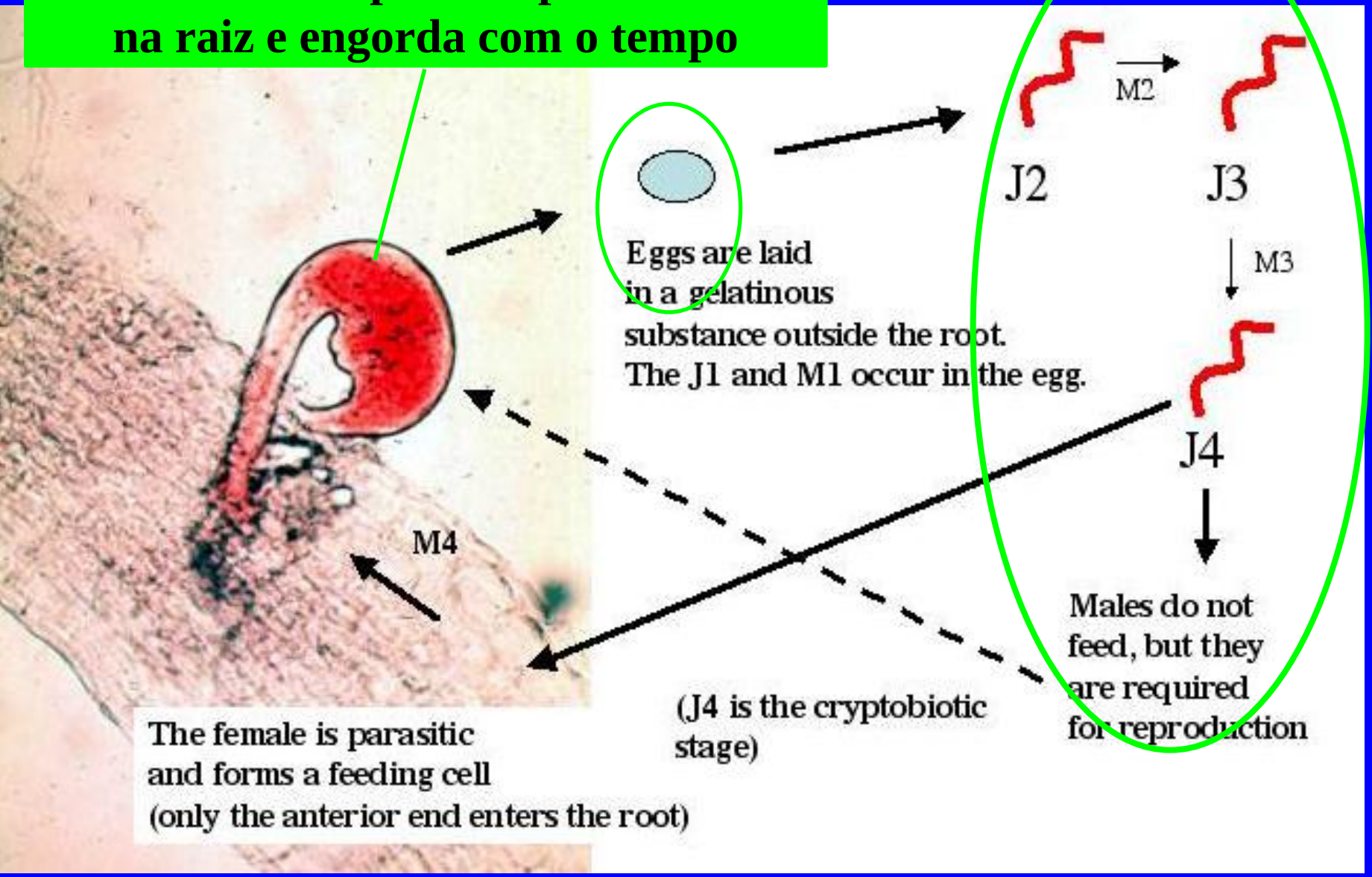
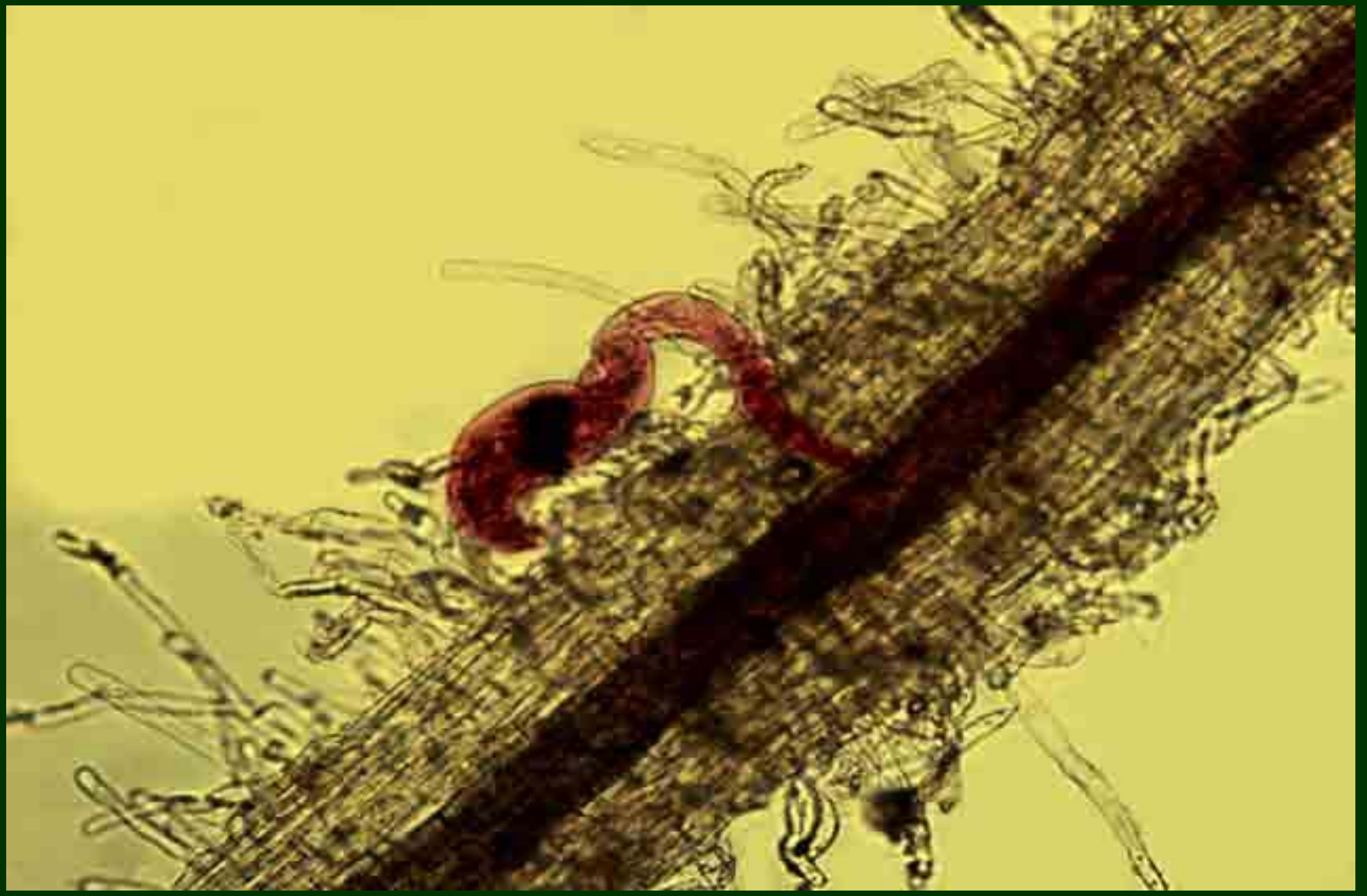


Figure 2. Life stages of the reniform nematode, *Rotylenchulus reniformis* Linford & Oliveira. Ranging from left to right is egg, juvenile, young female with swollen body, and mature female in kidney shape. Photograph by Koon-Hui Wang, University of Florida.

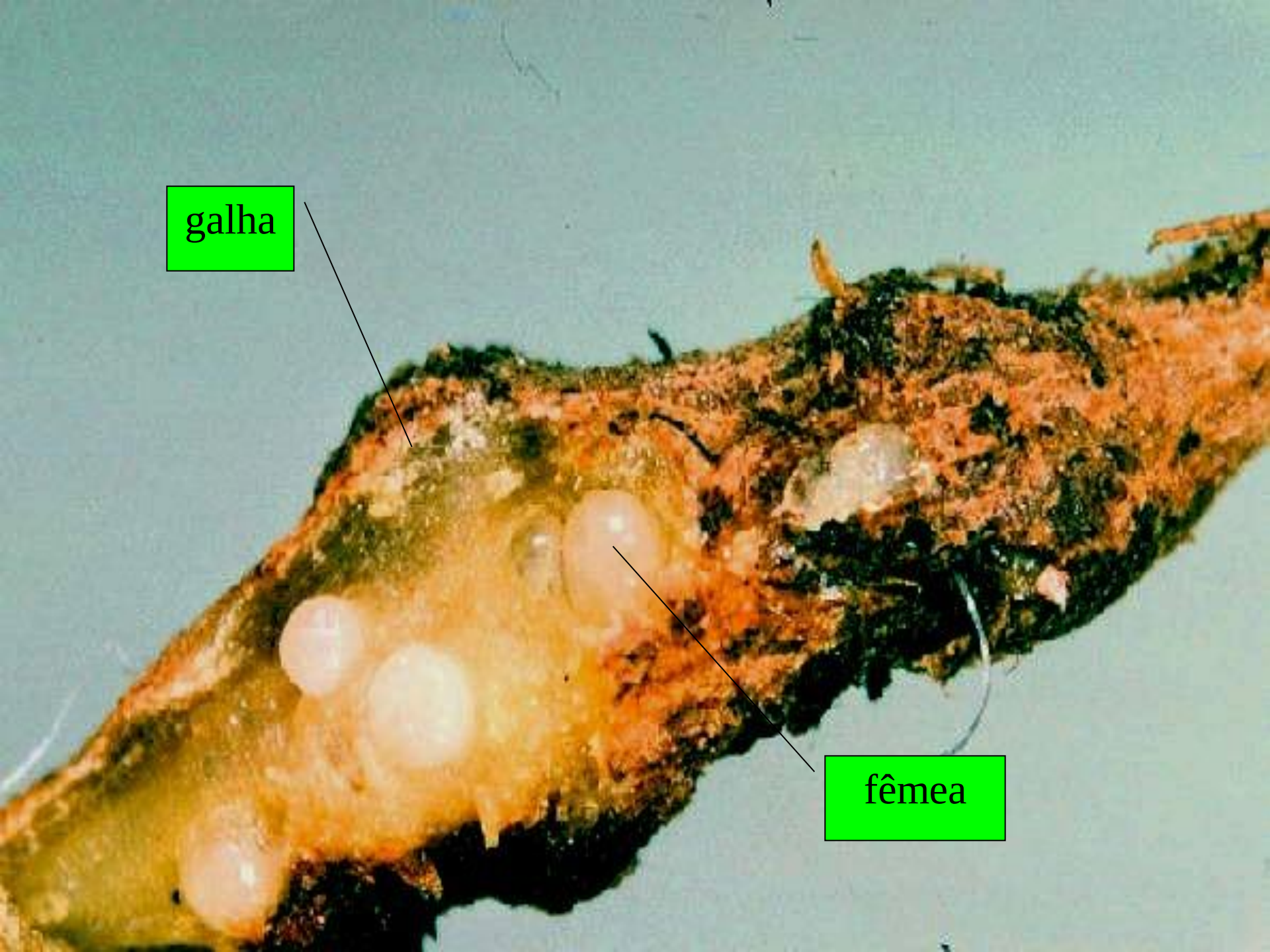
Rotylenchulus reniformis



Nematologia Brasil
http://nematobrasil.blogspot.com.br/2011/08/nematoide-reniforme-rotylenchulus.html

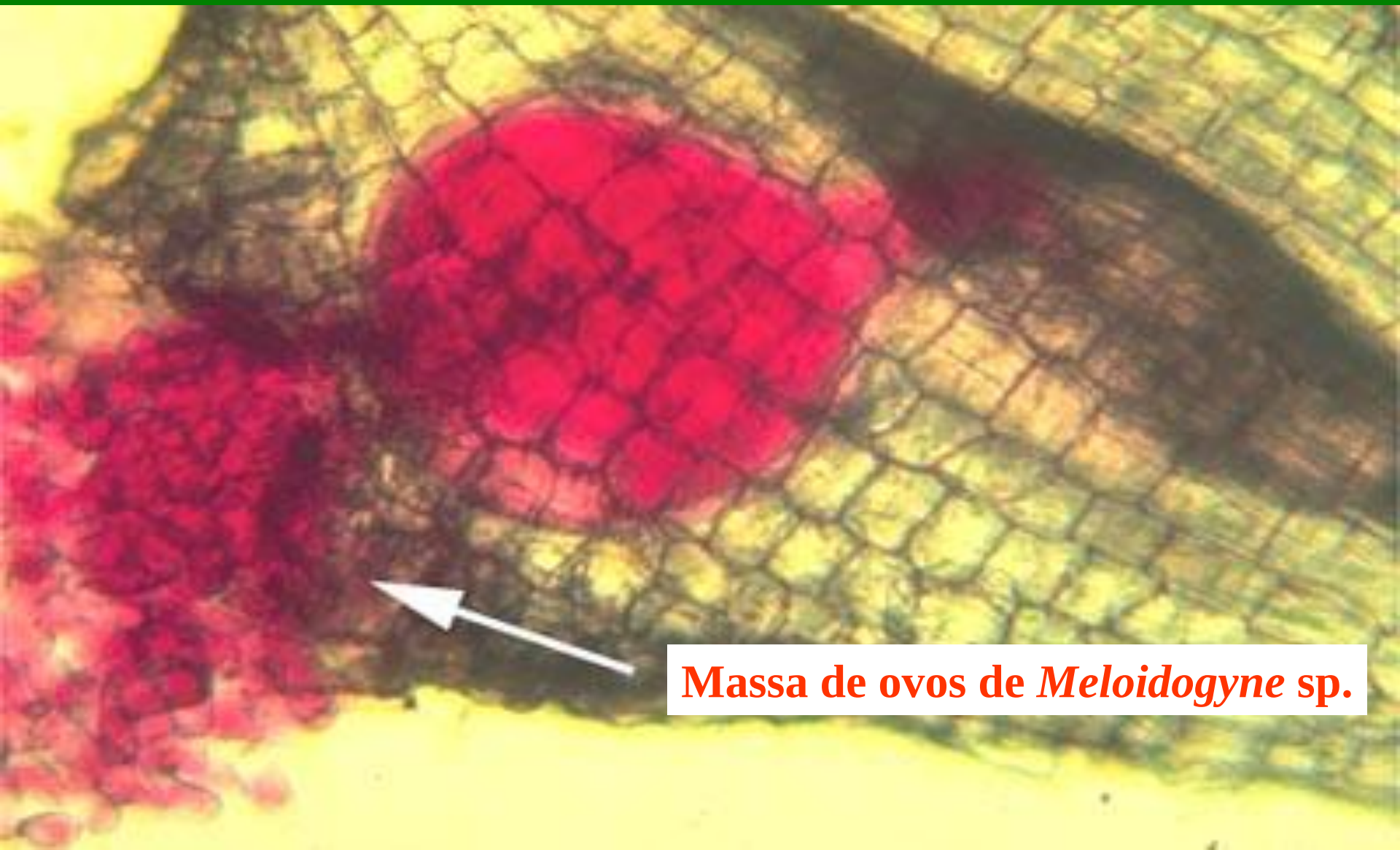
Galhas de *Meloidogyne arenaria* em raízes de pessegueiro

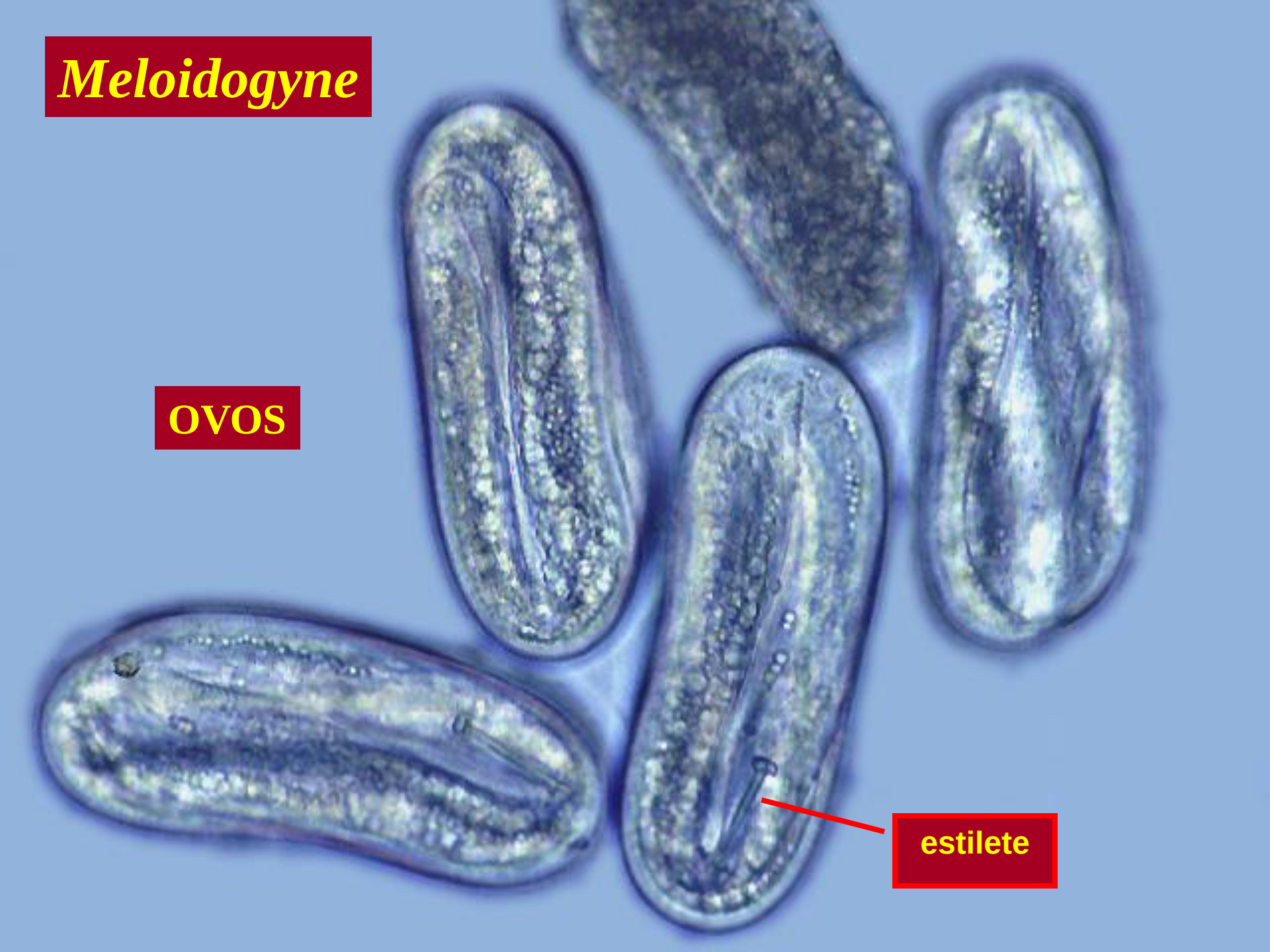
Meloidogyne


galha
fêmea

Meloidogyne sp. - fêmeas dentro da galha

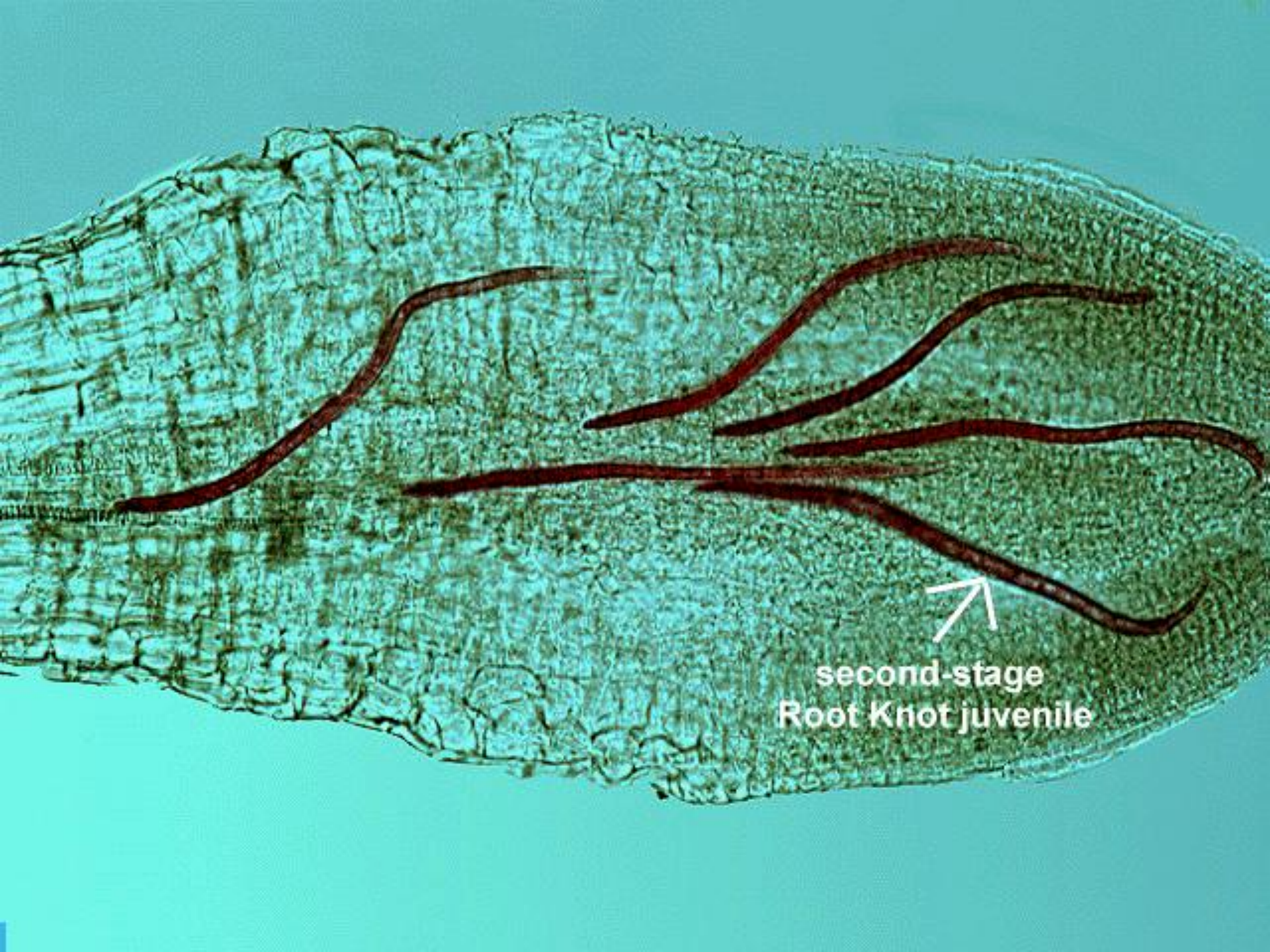
GÊNERO *Meloidogyne*
Endoparasito sedentário

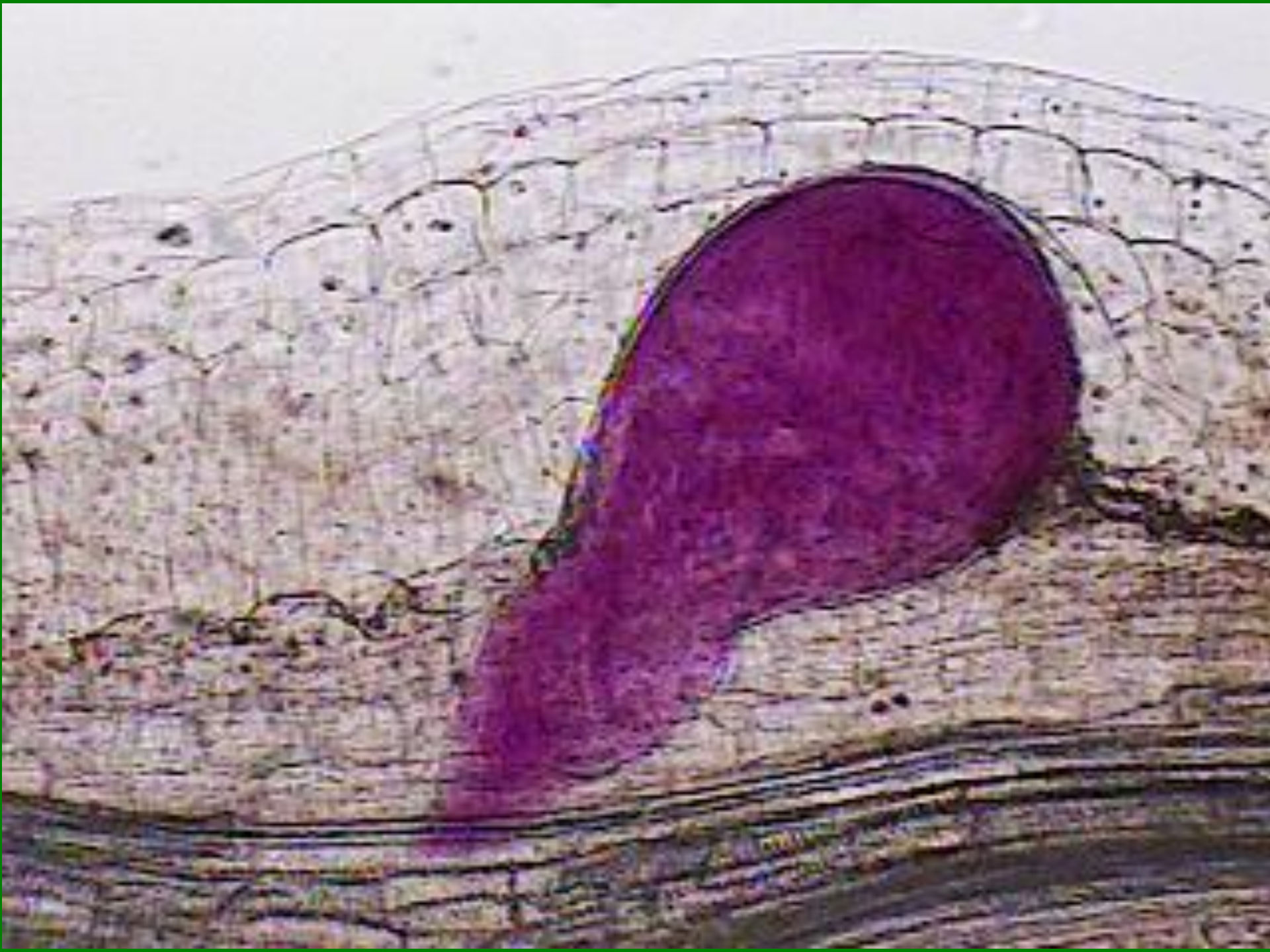



Meloidogyne
OVOS
estilete


J2
J3
J4
Fêmea imatura
JUVENIS


JUVENIS

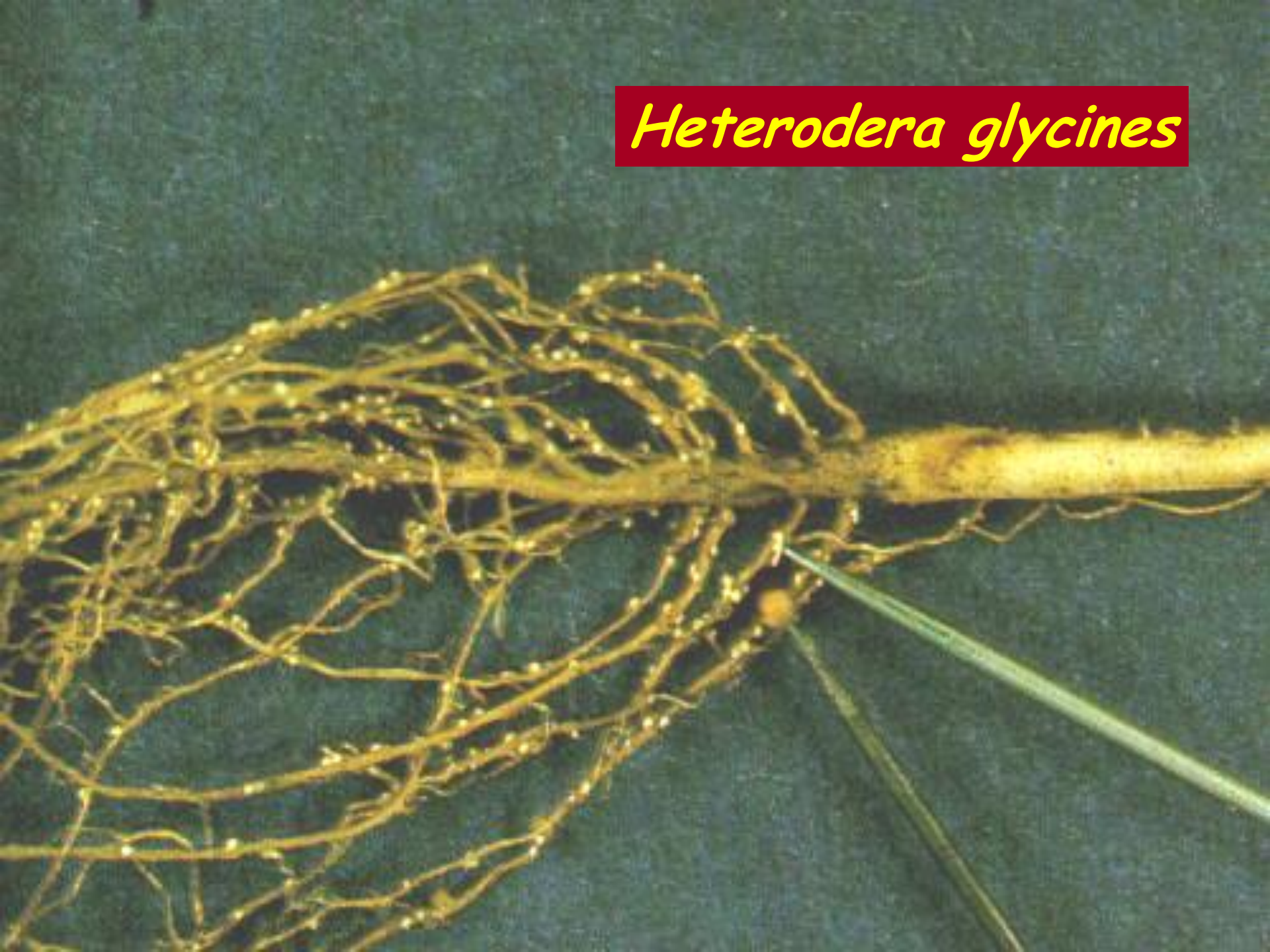

second-stage
Root Knot juvenile



Galhas em raízes de tomateiro


A


C
D


Heterodera glycines


Fêmea viva
Fêmea morta
(cisto)


ovos
cisto
juvenil

Nematóide de bulbos e folhas

Ditylenchus dipsaci
em alho

Photographer. Name: Sandra Jensen
Organization: Cornell University
http://www.invasive.org/browse/detail.cfm?imgnum=5461618#sthash.ru97XB3R.dpuf

Ditylenchus dipsaci
Cebola

Ditylenchus dipsaci
caules, bulbos e
folhas de alho e cebola

CRIPTOBIOSE OU ANIDROBIOSE

ESTADO NO QUAL O NEMATÓIDE PERMANECE QUIESCENTE POR LONGOS PERÍODOS DE TEMPO PARA SOBREVIVER A CONDIÇÕES DE SECA E FALTA DE ALIMENTO

Não confundir galhas com nodulações de bactérias fixadoras de nitrogênio

Nódulos são externos e podem ser retirados com facilidade

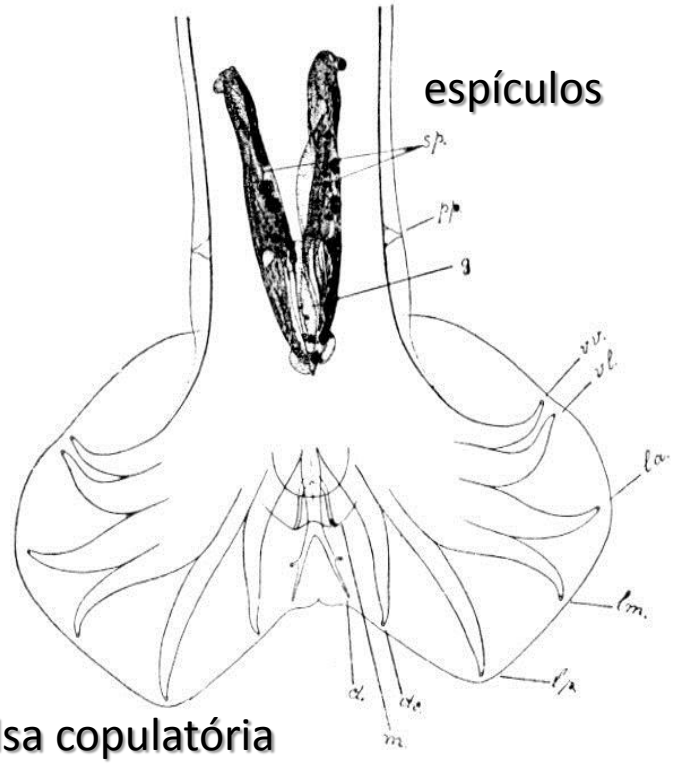
http://**www.anatomiavegetal.ib.ufu.br/exercicios-html/Raiz.htm**


Galhas são engrossamentos da própria raiz. Não podem ser retirados
Galhas em raízes de tomateiro

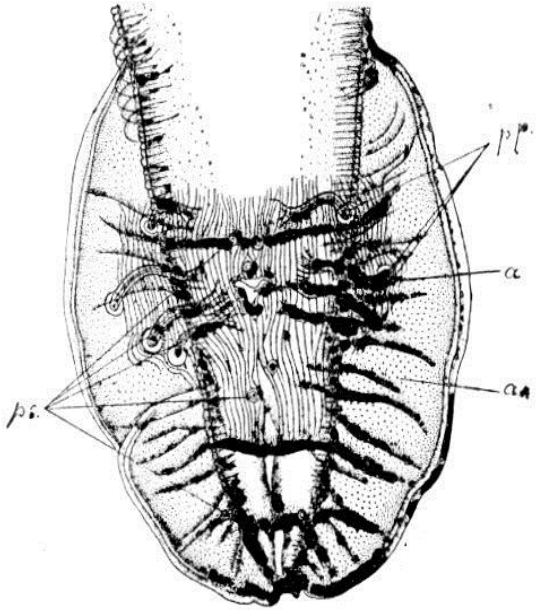

Nodulações produzidas por bactérias fixadoras de nitrogênio em raízes de soja
http://www.clicrbs.com.br/blog/

NEMATÓIDES PARASITAS DE ANIMAIS

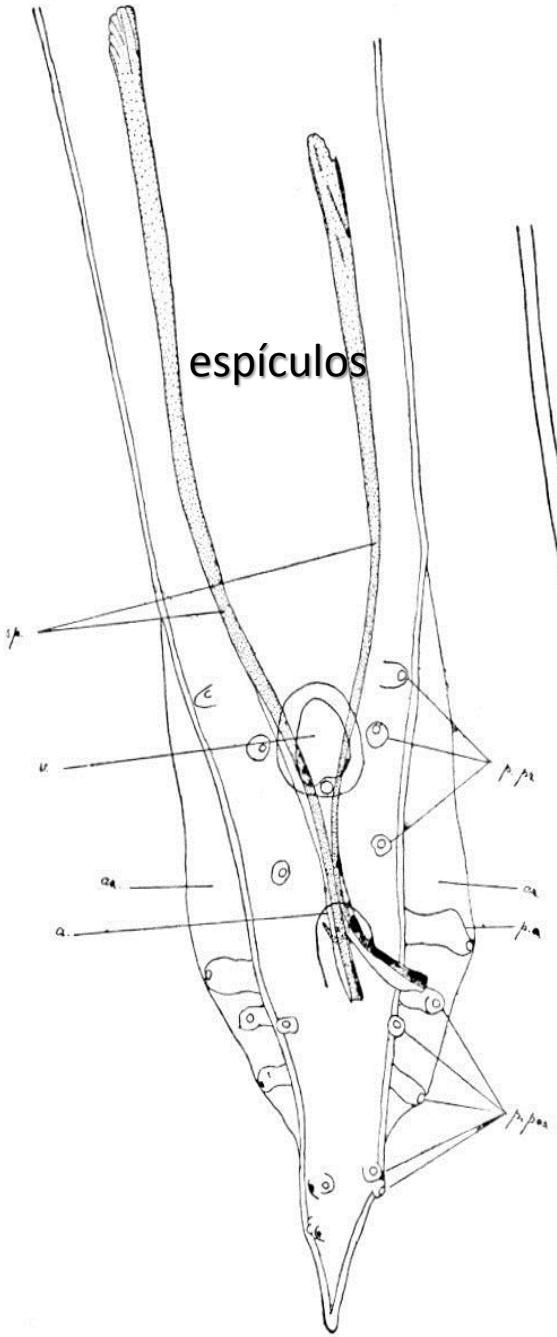
espículos



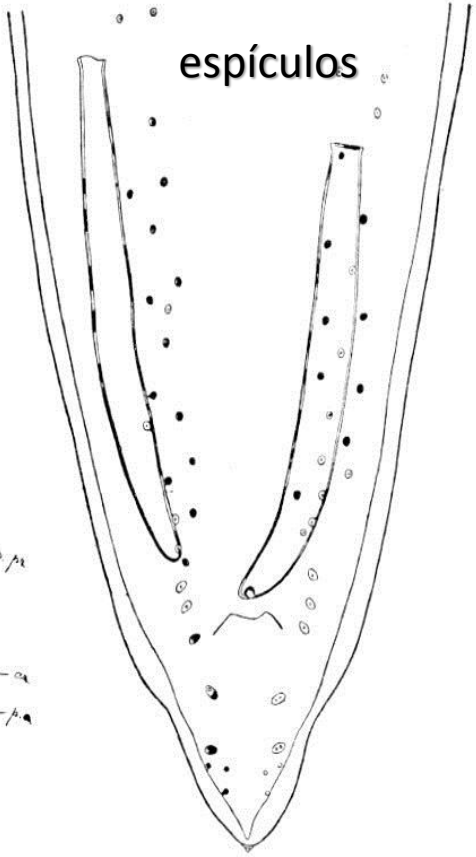
Bolsa copulatória



espículos



espículos



Sem bolsa copulatória

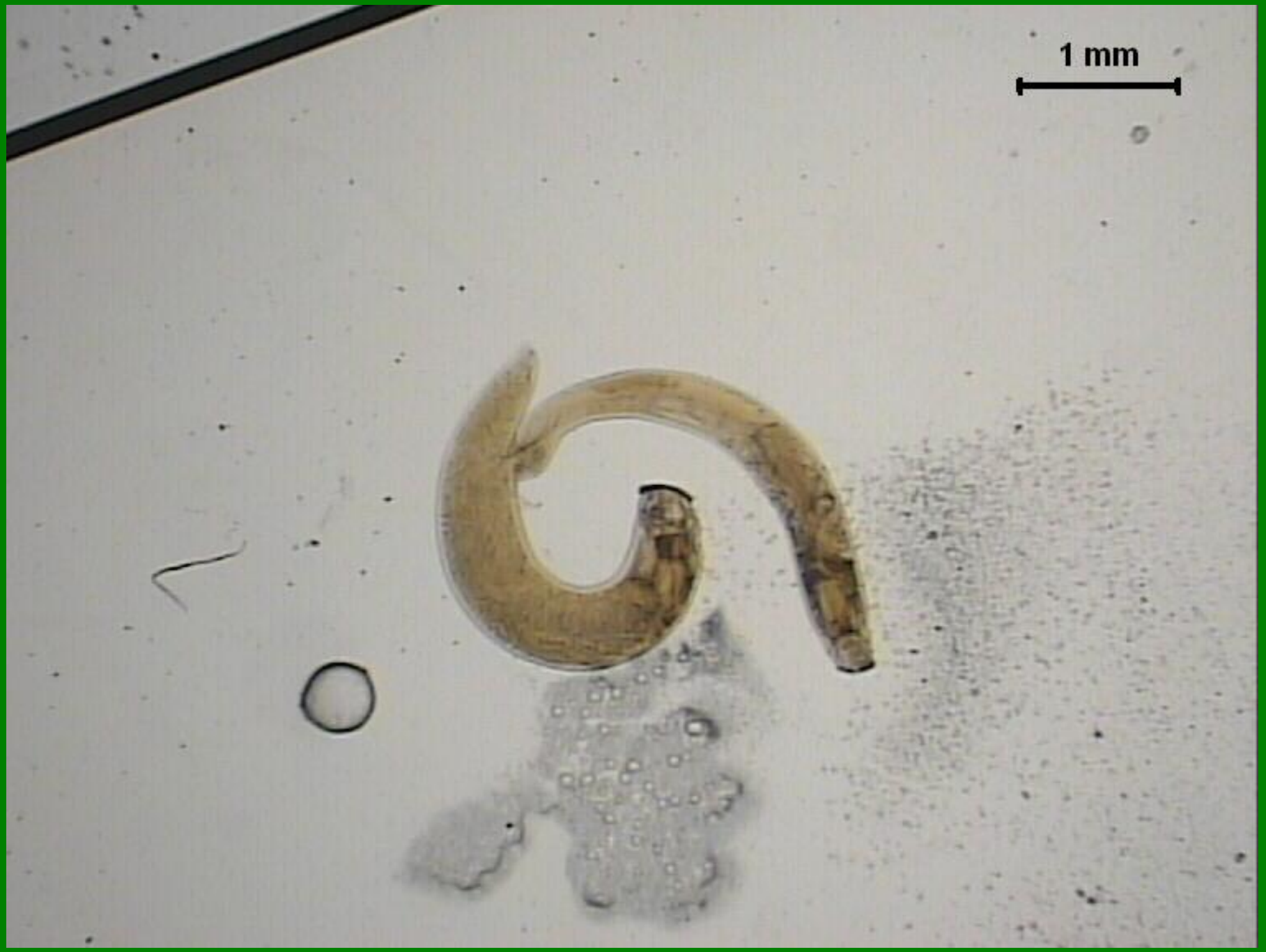
Fonte: Parasitologia. L Rey (2001)

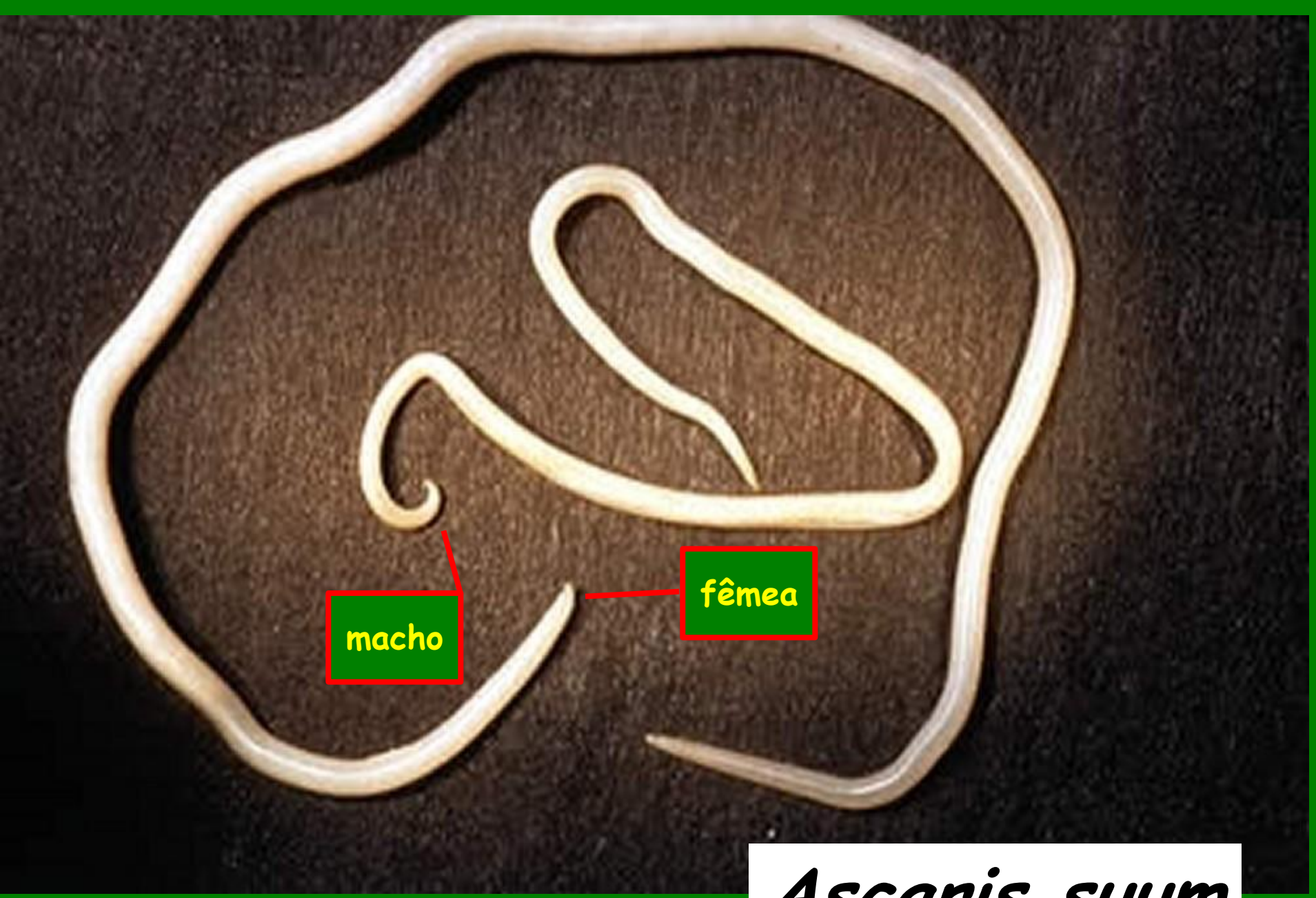
Kililuma longipene – parasita de anta

Oswaldocruzia sp.

Physaloptera retusa

Strongyluris oscari


1 mm

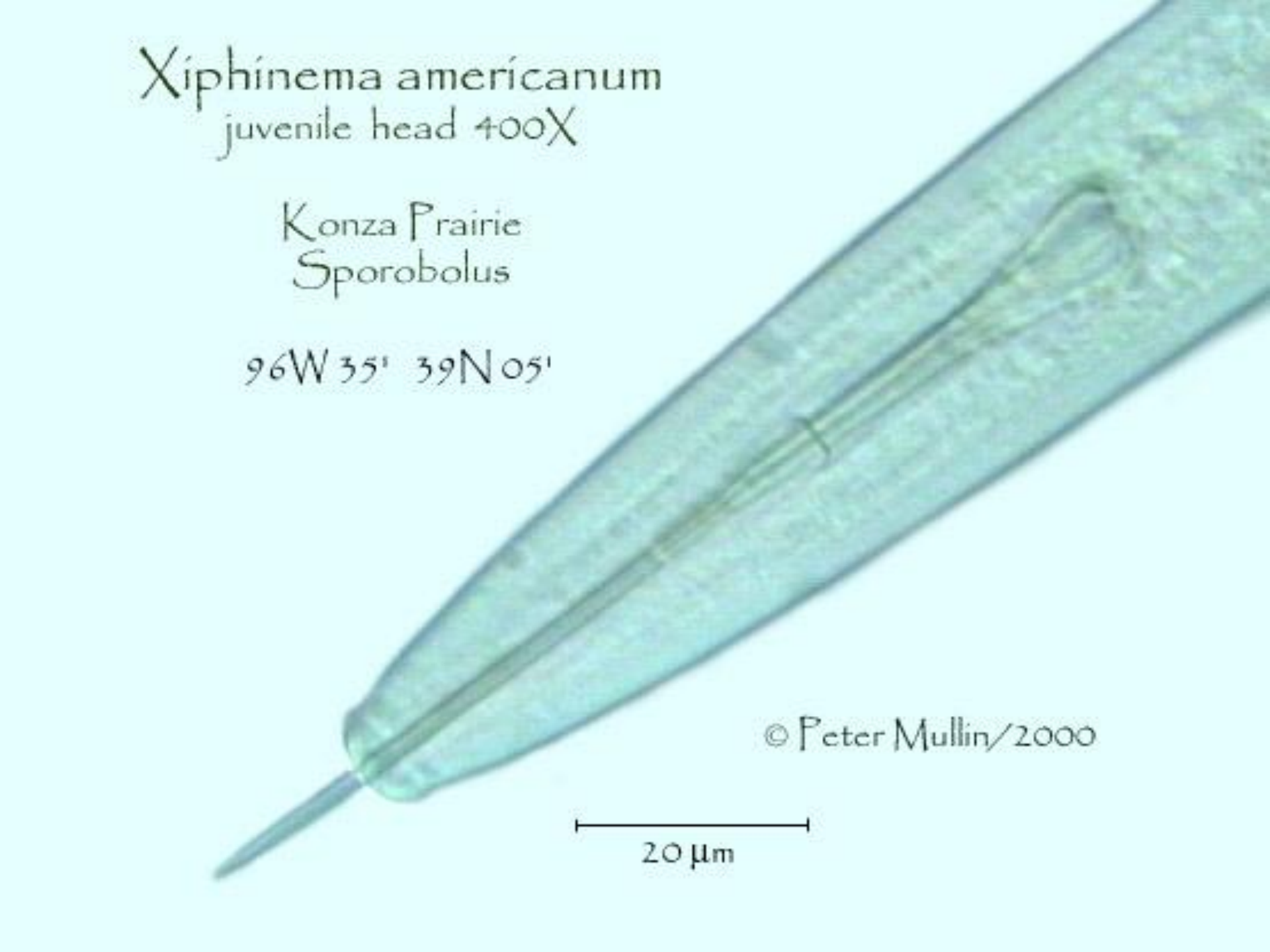


Ascaris suum

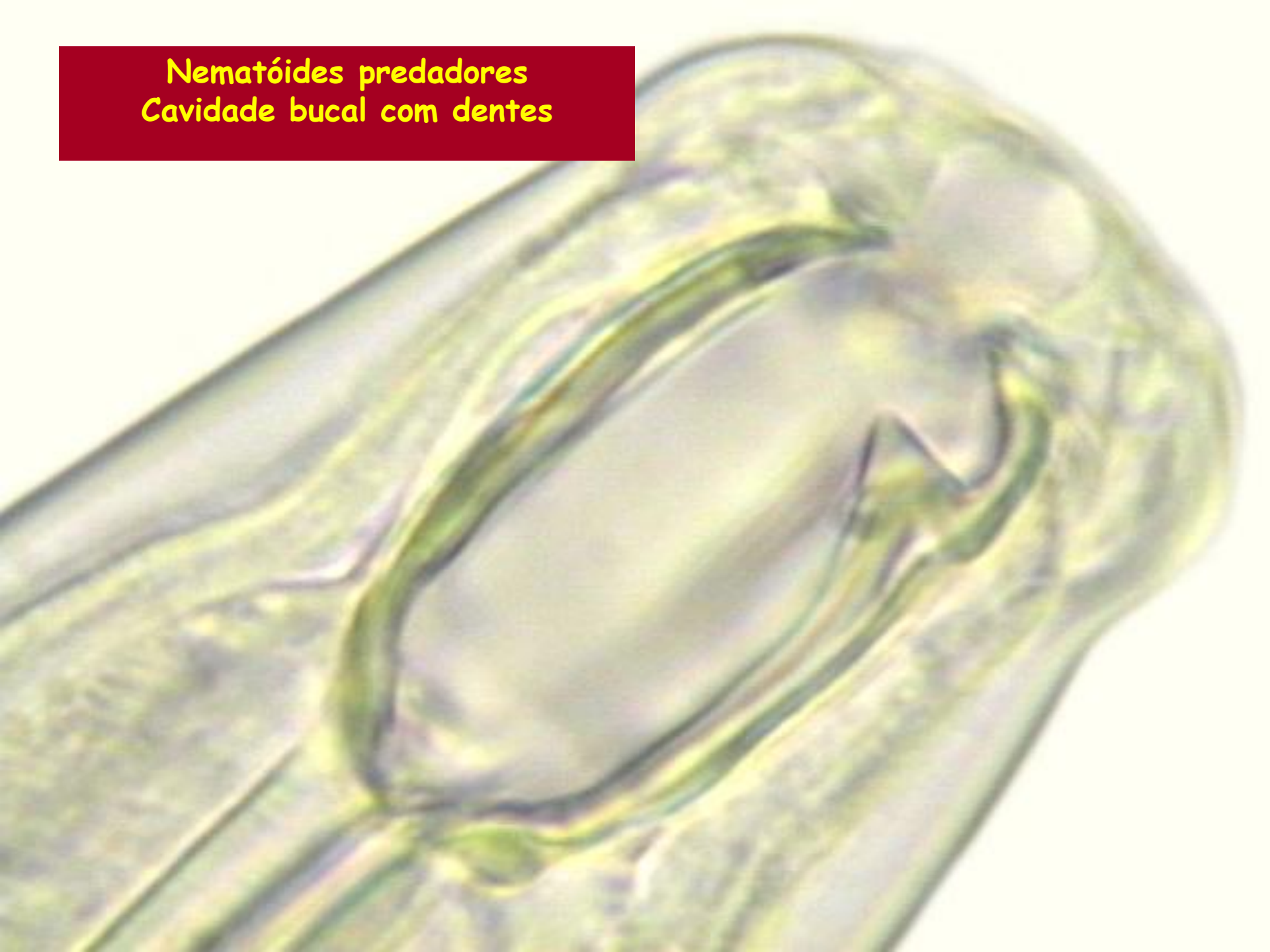
Dr. Dietrich Barth, Merial. http://www.merckmanuals.com

TIPOS DE CAVIDADE BUCAL


Ancilostoma – parasito de animais


Xiphinema americanum
juvenile head 400X
Konza Prairie
Sporobolus
96W 35' 39N 05'
© Peter Mullin/2000
20 µm

Nematóides predadores
Cavidade bucal com dentes



Nematóide predador
alimentando-se
de outro nematóide