

NEMATODES PARASITES OF CAPTIVE BIRDS AT NEHRU ZOOLOGICAL PARK AT HYDERABAD, ANDHRA PRADESH

K. RADHAKRISHNA REDDY AND B. V. RAO
Department of Parasitology, College of Veterinary Science, Hyderabad 500 030, India.

STUDIES on the incidence of nematode parasites in the Zoo birds in India are scanty, though some nematodes in Zoo birds from Orissa, Lucknow and Delhi have been reported^{1,2}. This report deals with the nematode parasites collected on post-mortem in birds which died at the Nehru Zoological park at Hyderabad in Andhra Pradesh.

The name of the host and the nematodes recorded are given below.

<u>Name of the host</u>	<u>Nematodes recorded</u>
Myna (<i>Acridotheres tristis</i>)	<i>Splendidofilaria Osmaniae</i>
American Rhea (<i>Rhea Americana</i>)	<i>Capilaria</i> sp
Black partridge (<i>Francolinus</i>)	<i>Ascardia</i> sp
Guinea fowl (<i>Numida meleagris</i>)	<i>Ascardia galli</i>
Great horn bill (<i>Buceros bicornis</i>)	<i>Ascardia galli</i>
Magpie (<i>Cissa fivirostris</i>)	Microfilaria in the blood

Capillarids, Ascarids and Spirurids were recorded² in Zoo birds in Lucknow and Delhi. *Tetrameres* sps was recorded¹ in addition to Ascarids from Zoo birds in Orissa.

The record of *S. osmaniae* and microfilaria in the blood of Magpie (figure 1) do not appear to have been recorded elsewhere.



Figure 1. Microfilaria in the blood of Magpie.

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BOLETACEAE OF KUMAUN HILLS, INDIA

N. S. K. HARSH AND N. S. BISHT
Botany Department, Kumaun University, Nainital 263 002, India.

THIS paper gives a detailed account of three species of Boletaceae collected from various localities of Kumaun region, which are new records for India, viz., *Boletus craspedius* Mass., *B. dissiliens* Corner and *Tylopilus indecisus* (peck.) Murr.

1. *Boletus craspedius* Mass., Kew Bull. 11:76. 1914.

Pileus 5–20 cm, convex to plane, surface dry, bay brown to reddish brown, lighter towards margin, latter incurved on drying; context up to 2.5 cm thick in the centre, quickly cyanescent, fading to drab white; stipe 4–10 × 1.5–3.5 cm; cylindrical to subventricose, fleshy, firm, orange-red, sometimes reticulated at the apex; tubes 0.5–2 cm long, adnexed to nearly free, greenish-yellow, cyanescent; pores circular to angular, 2–3 per mm, crimson then dull orange, deeply cyanescent; spores dark olivaceous in mass, smooth, guttulate, 8–11 × 4.5–5 μm; basidia hyaline, clavate, 25–30 × 10–12 μm; cheilocystidia cylindrical to subventricose, 20–30 × 3–5 μm; pleurocystidia similar to cheilocystidia but thin-walled; hyphae from pileal surface 5–7 μm broad with thick brown incrustations; cystidia on stipe surface thick walled, reddish and 10–25 × 3–5 μm; Chemical reactions: KOH—context pale orange; NH₄OH—context reddish, cuticle red; FeCl₃—context grey; HCl—context light purplish brown; FeSO₄—no reaction but it checks the cyanescent reaction; Melzer's reagent—context pinkish red.

Habit and habitat: Gregarious under oak forests, collected from China-peak, N 78, 5, July 1979 and Tiffin Top, N 411, 3 July, 1980, Nainital.

2. *Boletus dissiliens* Corner, *Boletus in Malaysia*, p. 98, Pl. 5(2), 8(1), 1972.

Pileus 4–11 cm, convex, surface dry, pinkish-tan, tan-buff to tan-white, cracking into flat patches with age; margin covering the pore surface as a veil when young later on splitting radially and stellately; context 0.5–1.5 cm thick in the centre, white to pale, quickly cyanescent; stipe 8–11 × 0.5–1.5 cm, bulbous at the base, not reticulated; tubes 0.5–1.5 cm long, sinuate to

adnate, golden yellow; quickly cyanescent; pores angular, concolorous, cyanescent; spores olive brown, ellipsoid, weakly striate, guttulate, $14-16 \times 5.5-7 \mu\text{m}$; basidia pyriform; cystidia fairly common on the tube surface and edge, hyaline, ventricose, thin walled, $45-90 \times 12-17 \mu\text{m}$; hyphae from pileal surface $5-10 \mu\text{m}$ broad with brown contents.

Chemical reactions: KOH—context light pink; NH_4OH —context light pinkish brown; FeCl_3 —no reaction; H_2SO_4 —context yellow brown; HCl—context light pink; FeSO_4 —context light bluish green, becoming gelatinous; Melzer's reagent—context dark brown.

Habit and habitat: Solitary to gregarious, collected from Nalaina, Nainital, N 421, 22 July, 1980 under mixed forests.

3. *Tylopilus indecisus* (Peck) Murr., Mycologia 1:15. 1909.

Pileus 5–15 cm broad, convex to plano-convex becoming shallowly depressed, surface moist to dry; margin entire, dull with age; context 1.5–3 cm, white near the cuticle, tan elsewhere, changing slowly to light brown on bruising; stipe $7-10 \times 2-4.5 \text{ cm}$, subclavate, distinctly reticulated, solid, pinkish-buff to cinnamon; flesh white changing to tan on exposure; tubes 0.5–1 cm long, depressed to decurrent, pink to pale to dark; pores angular, concolorous with the tubes, changing to brown on bruising; spores flesh coloured, thin-walled, smooth, cylindrical to ellipsoid, $10-13 \times 3-5 \mu\text{m}$ basidia hyaline clavate $16-22 \times 5-7 \mu\text{m}$ hymenial cystidia inconspicuous, rare, clavate, somewhat incrusted, $18-26 \times 6-10 \mu\text{m}$; hyphae from pileal surface $5-8 \mu\text{m}$ broad.

Chemical reactions: KOH—cuticle black; NH_4OH —cuticle red; HCl—cuticle yellow brown; FeSO_4 —cuticle black, stipe and context grey.

Habit and habitat: Scattered on soil under oak forest, collected from Chaubatia Garden, Ranikhet, Almora, N 479, 2, August 1980.

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CELLULAR DAMAGE INDUCED BY FOOD PROCESSING INDUSTRY WASTE WATERS IN *ALLIUM CEPA*

R. K. SOMASHEKAR AND M. T. G. GOWDA
P. G. Department of Botany, University of Mysore, Mysore-560 006, India.

CELLULAR damage caused by waste waters of industrial origin are not very well understood. Mudd and

Kozłowski¹ have shown that industrial effluents can induce cellular damage among plant and animal cells. Fishbein² who supported this view opined that industrial effluents are responsible for genetic damage among plants and animals. Cellular damage caused by waste waters of industrial origin have been worked out in India³⁻⁵. However, such studies have been limited to the actual damage caused and no reports are available on the factors responsible for inducing such changes. The present communication is a report on the somatic cell abnormalities induced by food processing industry waste waters in the case of *Allium cepa*.

The industry is located about 4.5 km away from Mysore City, Karnataka. It generates about 50,000 litres of waste water per day. The effluents run in the form of a stream for about 1.5 km and join one of the nearby sewage channels. Effluent samples were collected at 5 different sampling points from January 1979 to December 1980, and analysed using standard methods⁶. The combined effluents were used to study the cellular damage. Fast growing onion root tip (*Allium cepa*) cells were treated for 6, 24 and 48 hr with 25, 50, 75 and 100% effluent samples and recovery experiments were carried out. Control was maintained in all the cases. The control as well as treated root tips were fixed in acetic-alcohol for 24 hr and preserved in 70% alcohol. Root tips were examined by

TABLE I

Physico-chemical factors of the effluents (100% concentration). All values except pH are in mg/l.

Characteristics	Average values
pH	9.8
Total dissolved solids	3048
Dissolved oxygen	0.85
Biochemical oxygen demand for 5 days at 20°C	6000
Chemical oxygen demand	6146
Chlorides as Cl	1421.6
Sulphates as SO_4	212.5
Silicates as SiO_2	64.83
Ammonical Nitrogen	89.4
Nitrate Nitrogen	0.032
Nitrite Nitrogen	0.130
Calcium salt as Ca	277.5
Magnesium as Mg	19.2
Nickel as Ni	0.90
Cobalt as Co	0.90
Zinc as Zn	0.70
Boron as B	0.295