culture-filtrates of each fungi were obtained by filtration. The culture-filtrates thus obtained were concentrated to one-fifth of its volume under reduced pressure. Antibiotic activities of each type of culture filtrates were then tested by 'cup-plate' method on plates containing nutrient-peptone agar medium (Peptone—5%, beef extract—3%, glucose—1%, agar—2.5% and pH—7.2) seeded with Bacillus subtilis. The well developed inhibition zone was noted when fair amount of growth of the organism was observed in incubated plates.

Results and Discussions

Among the fourteen test fungi studied, five showed inhibition zone against Bacillus subtilis. Of these five species, Clitocybe sp. shows better antibiotic property than the others but this particular mushroom produces antibiotic compound only in malt-peptone medium. Besides Clitocybe sp., other three mushrooms (L. lepidophora, L. erythrogramma and Lentinus squarrosus) also produce antibiotic compounds in malt-peptone medium but they fail to produce antibiotic compounds in Czapeck dox medium. On the contrary, T. crassum, fails to produce antibiotic compound when grown in malt-peptone medium and shows more or less a good inhibition zone when grown in Czapeck dox medium. The above data indicate the role of nutrient composition of medium on the antibiotic production by respective mushrooms. Although there is a report of antibiotic production from Clitocybe illudens (Anchel et al.), this is the first report on the antibiotic production from Tricholoma crassum, Lepiota lepidophora, Lepiota erythrogramma and Lentinus squarrosus. Another interesting point noted from the data is that, except Lentinus squarrosus, all the antibiotic producing strains mentioned above are soil inhabitant which supports the Grossbard's opinion. As both the two species (L. lepidophora and L. erythrogramma) of the genus Lepiota show antibiotic properties, further screening on other available species of the genus might be encouraging in future.

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OCCURRENCE OF TRICHODINA PEDICULUS EHRENBerg, 1838 ON FRESHWATER CARPS, BARBUS SPP.

Trichodina pediculus, a peritrichous ciliate, has been reported from different geographical locations (USA, USSR, China and Poland) parasitizing fishes (Rutilus rutulus, Alburnus alburnus, Leucaspis delineatus, Coregonus albula, Carassius carassius; Cyprinus carpio; Leuciscus idas, Perca fluviatilis, Lucioperca lucioperca; and Micropterus salmoides) and also Amphibians, Necturus and Coelenterates, Hydra.

During our survey on parasitic protozoa of freshwater fishes in Karnataka (India) we came across T. pediculus on the body surface and fins of Masheep carps, Barbus chola (Ham. and Buch.), B. sarana (Ham. and Buch.) and B. stigma (Day) collected in the month of November 1978 from Municipal Garden tank, Sharanabasewshwar tank and the moat around Bahamani fort, all situated in the heart of Gulbarga city.

The infected tissue was smeared and ciliates were examined live to detect the shape of the body, the velum and the marginal cilia. The air dried smear slides were stained with Klen's silver impregnation technique for studying the details of the adhesive disc. Some of the air dried smear slides were stained with Giemsa or iron hematoxylin after Carnoy's fixation for studying the nuclear complex. The terminology and measurements of various components of adhesive disc and other features of the ciliate presented in this note are in accordance with that outlined by earlier workers. T. pediculus though has been reported by many workers, the details of the adhesive disc as revealed by Klen's silver impregnation technique and other biometric information are furnished by a few only. The specimens found on Barbus spp. have revealed some biometric differences from those reported earlier which are given below in parenthesis with their respective reference number. The values in inverted comma are mean of the range.

The organism is a medium sized 51–6–70·7 μm "67·8 μm" (72·1–103·0 μm); 61–86 μm "69 μm" (72·1–103·0 μm). The diameter trichodinid having disc shaped body)
There is constriction at the adoral surface where adoral zone of cilia are located forming a spiral course (Fig. 1) of about 380–388⁰ (380–390⁰) parallel to the plane of adhesive disc. A velum is a conspicuous fold which was observed in live condition. The contractile vacuole is located eccentrically.

![Image](image1)

**FIGS. 1–2. T. pediculus.** Fig. 1. Spiral course of adoral zone of cilia x 450. Fig. 2. Adhesive disc x 750.

The adhesive disc (Fig. 2) is large 45.5–62.5 μm "48·8 μm" (4.8–59·4 μm²; 55–85 μm⁴; 45.5–57 μm "48 μm"[19]) in diameter surrounded by a finely striated narrow, 2·7–5·4 μm "3·3 μm" (8·4–11·5 μm⁶; 3·5 μm⁸) broader membrane. The centre of the adhesive disc is finely granular and does not stain dark in silver impregnated forms. The diameter of the denticulate ring ranges from 32·2 to 40·8 μm "38·9 μm" (32·3–38·2 μm²; 35 μm¹¹; 25–35 μm "29 μm"[18]); reinforced by 20–24 "22" (28–29⁰; 24–26 "23"[19]) denticles. The height of each dentele is 10–12 μm "11 μm" (10–12 μm³⁸) and its width, from tip of the blade to tip of thorbm, 15–17 μm "16 μm" (15·9–22·3 μm³⁸). The length of the blade and horn being 5·4–8·1 μm "7·8 μm" (5·5–7·0 μm "6 μm"[²⁸] and 8·1–10·9 μm "8·5 μm" (7–9 μm²⁸) respectively. The central conical part of the dentele measures 2·72 μm (2·3 μm³⁸) long. The number of radial pins lying in between two consecutive denticate ranges from 10–12 "11" (9¹¹; 10–12²¹). The blade is broad, falcate with pointed tip and not attached to the central part of the dentele at the same level as horn. The thorin is long, stout, thick at the base and gradually tapers to sharp point which is slightly curved posteriorly. It is attached to the central part of the dentele slightly anterior to that of the blade. The central part of the dentele has two components—the main body and a conical piece (about 4 μm long) attached to the tip of the former.

The nuclear apparatus consists of horseshoe-shaped macronucleus (Ma) and of a single micronucleus (Mi). The external diameter of the Ma is 32–57 μm "44·5 μm" (30–36 μm "32 μm"[²⁹]) and the width (thickness) of it is 8–9 μm (4–7 μm "5 μm"[³⁰]). The distance between the ends of Ma ranges from 8·1 μm to 10·8 μm (10–19 μm "14 μm"[²⁹]). The Mi is small, oval in shape 5·4 μm x 2·7 μm (2 μm x 2 μm²³) and is situated in the Y position (outside) at about 10·8–13·6 μm "12·2 μm" (8·0–15·0 μm "12 μm"[³²]) distance from one of the ends of Ma.

The specimens found on Barbus spp. resemble closely with the form described by Wellborn[²³] than others²¹. *T. pediculus* has been reported²⁹ to be cosmopolitan in distribution. The present finding (in India) is an additional evidence to substantiate this statement.

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2. Ehrenberg, C. G., cited by Wellborn²³, 1838.