

***Bipolaris indica* spec. nov.**

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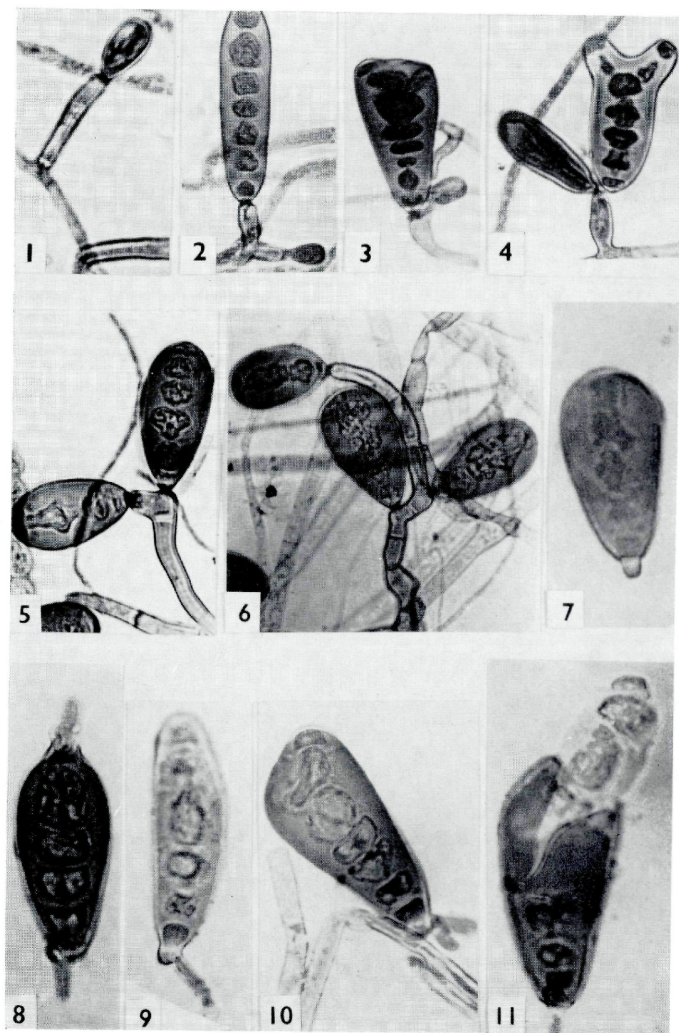
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With Plate I

Drechsler's (1923) paper on the graminicolous species of *Helmisporium* Link ex S. F. Gray (Shoemaker, 1959) was a major break-through in the taxonomy of this genus and set a clear line of work for the posterity based on shape of conidia, nature of the hilum and pattern of conidial germination. Nisikado (1928) divided the genus into two subgenera, *Cylindro-helmisporium* and *Eu-helmisporium*, the former including forms with cylindrical conidia germinating from any cell and the latter with fusoid conidia germinating from the two polar ends. Shoemaker (1959, 1962) segregated out two groups of species from *Helmisporium* sensu lato, both showing the terminal conidium at first which later became lateral due to subterminal growth of the conidiophore. Certain species with cylindrical conidia germinating from any cell were referred to the genus *Drechslera* Ito, (Ito, 1930) while those showing bipolar germination to *Bipolaris* Shoemaker. *Helmisporium* sensu strictu (Shoemaker, 1959) was considered to show the formation of conidia simultaneously both at the apex and sides of the conidiophores. Ibrahim (1966) in a study using an electronic computer, confirmed the validity of *Drechslera* and *Bipolaris* as separate genera. Nature of the conidial hilum, among other characters, is an important feature of these fungi. The genus *Bipolaris* comprises of two sets of species, one with non-protuberant or inserted hilum conidia with *Cochliobolus* Drechsler as the perfect stage and the other with protuberant hilum conidia and *Trichometasphaeria* Luttrell as the perfect stage (Drechsler, 1934; Luttrell, 1958, 1963; Nelson, 1965). This paper describes a new species *Bipolaris indica* spec. nov., named after the country of origin, and showing smallest conidia in the protuberant hilum section of the genus.

***Bipolaris indica* spec. nov. (Figs. 1—11).**

Caespites in Czapek-Dox agar effusi, in culturis post septem dies ad $30 \pm 1^\circ \text{C}$ usque ad 6 cm diam. acrescentes; mycelium intramaticale brunneo-nigrum, mycelium aereum olivaceum; conidiophora olivacea vel obscure brunnea $81.6\text{--}365 \times 8.5\text{--}10.2 \mu$, plerumque simplices, ramosa, ad basim $42.5\text{--}170 \mu$ longam intervallis $17\text{--}50 \mu$ septata,



superne in parte fertili 42—192 longa geniculata, cicatricibus conidiorum ad intervalla 13.6—102 μ praedita, interdum in hyphas steriles longas antice iterum in conidiophora transeuntes protracta; conidia primum terminalia, continua et hyalina, postea lateralia, 17—60 \times 14—38 μ obscure olivacea, continua vel 2—7-septata, clavata, interdum fusioidea, raro in antice furcata recta vel lenissime curvula, in apice latissima, basim versus paulatim attenuata, cellula basali plerumque obconica et hilo prominulo praedita, plerumque tubis polaribus duobus germinantia, rarissime tubo apicali deficiente vel etiam tubis basalibus duobus ornata.

Colonies on Czapek-Dox agar spreading, attaining a diameter of about 6.0 cms. in one week old cultures at $30 \pm 1^\circ$ C, submerged mycelium brownish black, aerial mycelium copiously sporulating and olivaceous brown. Conidiophores olivaceous to dark brown, 81.6—365.0 $\mu \times$ 8.5—10.2 μ , generally unbranched, rarely branched, consisting of a lower stalk 42.5—170.0 μ region with septa at intervals of 17.0—50.0 μ and an upper fertile 42.0—192.0 μ region, fertile region geniculate, with 4—6 conidial scars at intervals of 13.6—102.0 μ , sometimes the fertile portion proliferating into a long sterile portion in turn terminated by a fertile region, with widely spaced scars, the conidiophore system in such cases measuring more than 1.0 mm. in length. Conidia terminal at first, becoming lateral later due to subterminal growth of the conidiophore, one-celled and hyaline at first, later becoming 17.0—60.0 $\mu \times$ 14.0—38.0 μ , dark olivaceous and 1—8 celled, usually clavate, sometimes fusoid, rarely forked at the apex, straight or slightly curved, widest just below the apex and gradually tapering to the base, basal cell almost obconical and generally with a protuberant hilum, releasing globose hyaline cells on applying pressure, germinating through two polar semi-axial germ-tubes, in exceptional cases the apical germ-tube absent while in others two basal germ-tubes present. The perfect stage not known. Isolated from the flowers of *Brassica nigra* collected from Lucknow, India in March 1967. Type culture deposited in the Commonwealth Mycological Institute as IMI 129790.

The important conidial features of seven known protuberant hilum species of *Bipolaris* have been presented in Table 1 and compared with those of *B. indica* spec. nov., from where it will be clear that the new species proposed in this paper is clearly distinct on account of its significantly small conidial size.

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Table 1.
Conidial characters of protuberant hilum species of *Bipolaris*.

Species	No. of septa	Conidia		Reference
		Length	Width	
		(μ)		
<i>B. halodes</i> Drech.	1—12	20—105	10—14	Drechsler, 1923.
<i>B. holmii</i> Luttrell	5—11	56—134	14—31	Luttrell, 1963.
<i>B. pedicellatum</i> Henry	—	—	—	Nelson, 1965.*
<i>B. monoceros</i> Drech.	3—10	40—150	15—22	Drechsler, 1923.
<i>B. rostratum</i> Drech.	8—15	32—184	14—22	Drechsler, 1923.
<i>B. turcicum</i> Passerini	1—8	45—132	15—25	Drechsler, 1923.
<i>B. micropus</i> Drech.	3—9	28—92	10—18	Drechsler, 1923.
<i>B. indica</i> spec. nov.	0—7	17—60	11—38	

* Because of the nonavailability of Henry's (1924) paper, the figures by Nelson (1965) were studied from where the conidia appear to be 6—7 septate and 89.0—94.0 μ × 27.0—28.0 μ.

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Plate I.

Bipolaris indica spec. nov. on Czapek-Dox agar. 1—6. Successive stages in conidia formation. Figs. 3, 4 show apically forked conidia, 1 × 870, 2 × 562, 3, 4 × 604, 5 × 713, 6 × 560. 7. Conidium showing protuberant hilum × 688. 8—10. Conidia showing various patterns of germination, 8 × 737, 9 × 794, 10 × 772. 11. Conidium showing the release of hyaline globose cells on applying pressure × 832.

* Not seen in original.

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