

Studies on family diatrypaceae (Sphaeriales, Fungi) from Punjab -II. Genus *Eutypa* Tul.

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Abstract

Two species of the genus *Eutypa* viz; *E. lata* (Tul) Fr. and *E. leioplaca* (Fr.) Ell. & Ev. Of Family Diatrypaceae (Sphaeriales Fungi) from the state of Punjab have been described and illustrated in this paper. During the present investigations only two species have been collected from the study area, though extensive forays were undertaken. This indicates uncommon distribution of the genus. Out of the two species described, *E. leioplaca* has already been reported by Dargan & Bhatia (1989)^[1] from the Punjab state, another species, *E. lata* associated with *Morus* sp. is reported for the first time from Punjab.

Keywords: *Eutypa* diatrypaceae sphaeriales punjab fungi

Introduction

This is the second paper of the series started by the author on the studies of the family Diatrypaceae (Fungi) from the state of Punjab *Eutypa* is worldwide in distribution and is represented by 40 species all over the world (Hawksworth *et al.*1983)^[4]. However, species of *Eutypa* are not commonly reported from India. Only ten species of the genus have been reported by Jadhav *et al.* (1978)^[5], Gambir (1979)^[3] and Kar and Bhattacharya (1985)^[6] from different localities of Maharashtra, West Bengal and Poone.

Recently, two species of *Eutypa* new to India have been reported by Dargan & Bhatia (1989)^[1] from Punjab plains. These are *E. milliaria* (Fr.) Ell. & EV. and *E. leioplaca* (Fr.) Ell. & EV. During the present investigations only two species have been collected from the study area, though extensive forays were undertaken. This indicates uncommon distribution of the genus. Out of the two species described, *E. leioplaca* has already been reported by Dargan & Bhatia (1989)^[1] from the Punjab state, another species, *E. lata* associated with *Morus* sp. is reported for the first time from Punjab.

Eutypa Tulasne

Eutypa Tul., Sel. Fung. Carp. 2: 52.1863.

Stromata usually wide spreading, embedded in decorticated wood or sometimes in bark, usually poorly developed with ill-defined margins, sometimes discrete, surface black, usually incorporating host elements, roughened due to short exerted ostioles, perithecia scattered, lying usually in one layer, ostiolate; ostioles simple to clefted, usually subconical. Asci 8 spored, cylindrical to clavate, long stipitate with refractive apical invaginations and slightly amyloid to inamyloid apical rings. Ascospores cylindrical to allantoid, hyaline to pale yellow.

Substratum: On fallen twigs and dead branches of angiospermous trees

Type Species: *Eutypa lata* (Pers.) Tul., Sel. Fung. Carp. 2: 52.1863.

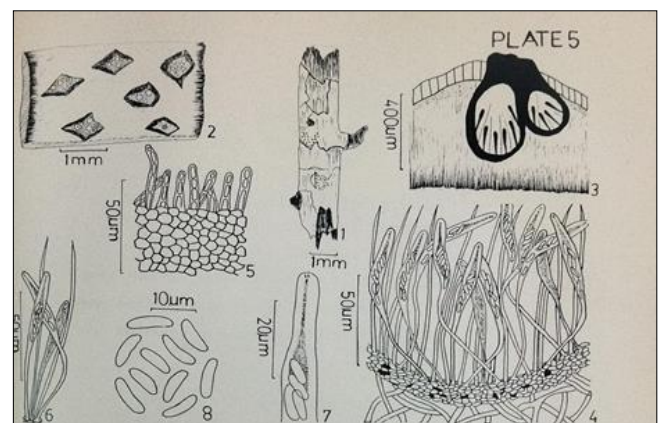
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the genus. Out of the two species described, *E. leioplaca* has already been reported by Dargan & Bhatia (1989)^[1] from the Punjab state, another is *E. lata*, pathogenic on *Morus* plant which is reported for the first time from Punjab.

Key to the Species

1. Stomatal surface hairy, hairs septate, individual stromata less than 1 mm across, dirty black, perithecia 2-25 per stroma, more than 500 ums wide, ostioles clefted, ascospores 8-9.1 x 1.6-3.3 um, allantoid.1. *Eutypa lata*.

1' Stomatal surface without hairs, individual stromata, less than 1 mm across, black, perithecia 2-10 per stroma, less than 500 ums in wide, ostioles stellately clefted, ascospores 6.7 - 10.5×1.6-2.5.....2. *E. leioplaca*

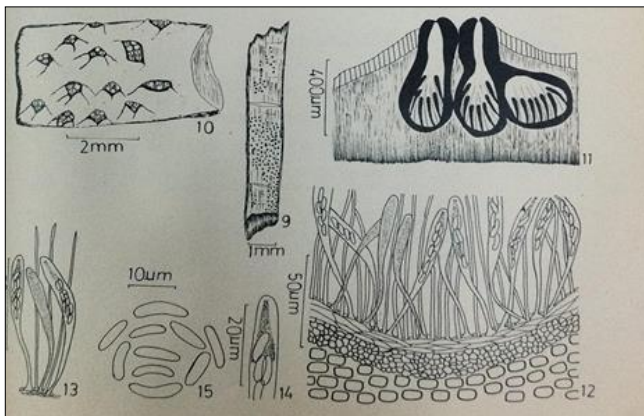


Eutypa lata (Pers.) Fr.

Plates: 5, Figs.1-8, 18, Fig.1, Map I.

1. Stromata general habit
2. Stromata enlarged
3. V.S. part of stroma showing various zones
4. V.S. part of stroma showing detailed anatomy
5. V.S. part of stroma showing detailed structure of outer entostroma
6. Asci and paraphyses
7. Ascus showing apical ring
8. Ascospores

Stroma erumpent, hemispherical, solitary, less than 1 mm across, dirty black, circumscribing line absent, surface rough due to slightly protruding ostioles. Flesh white. Ectostroma absent; entostroma textura angularis to intricata, cells 3.2-11.5 x 2.5-5.0 μm , thick walled, brown; hyphae 3.3 μm wide, thin walled, light brown. small erect hairs coming out from ectostromatic cells; hairs 3.3-4.1 μm wide septate, simple, dark brown. Perithecia 2-25 per stroma, 288.0-512.0 x 320.0-512.0 μm , globose, ostiolate; ostioles 4 clefted; perithecial wall 24.0-40.0 μm wide, textura angularis, undifferentiated, cells 5.0-6.4 x 2.5-3.3 μm , thick walled brown. Asci 80.0-140.0 x 6.0 μm , sporiferous part 40-60 μm , clavate, apical ring present, 8 spored, spores uniseriately to sub-biseriately arranged. Ascospores 8.0-9.1 x 1.66-3.3 μm , allantoid, pale yellow. Paraphyses 1.5 μm wide, non-septate, hyaline.



Eutypa leioplaca (Fr.) Ell. & EV. N. AM. Pyre. p.505.1892.

Plates: 5 Figs. 9-15, 18. Fig.2, Map I.

9. Stromata general habit
10. Stromata enlarged
11. V.S. part of stroma showing various zones
12. V.S. part of stroma showing detailed anatomy
13. Asci and paraphyses
14. Asci showing apical ring
15. Ascospores

Specimen Examined

Punjab: Bathinda; Beer Talab, on the living branches of *Morus* Sp., Ramanjit, PUN (1667), September 25,1990.

Remarks

The above collection is characterised by having erumpent, small, hemispherical, black, white fleshed hairy stroma with

slightly protruding clefted ostioles and allantoid ascospores. This specimen does not resemble fully with any species known earlier. However, it shows some close affinities with *E. lata* (Pers.) in the characters of perithecia asci and ascospores.

Stromata poorly developed, aggregated becoming effused, erumpent, spherical, less than 1 mm across, circumscribing line absent, surface punctate due to slightly protruding ostioles. Flesh white. Ectostroma rudimentary, in the form of small patches above periderm, textura globulosa, mixed with host tissue, cells 3.3-6.7 x 3.3-5.8 μm , thick walled, brown; Entostroma poorly developed, undifferentiated, mixed with the host tissue. Perithecia 2-10 per stroma, 320.0-480.0 x 255.0-450.0 μm , pyriform, emerging separately, ostiolate, ostioles stellately clefted, slightly protruding; perithecial wall 20.0-40.0 μm wide, textura angularis, differentiated into two regions; outer region 12.0-24.0 μm wide, cells 3.2-6.7 x 1.67-2.5 μm , thick walled, brown; inner region 8.0-20.0 μm wide, cells 16.6- 36.5 x 2.5-4.0 μm , thin walled, hyaline. Asci 68.0-80.0 x 6.0-8.0 μm , sporiferous part 32.0-48.0 μm , clavate, apex obtuse, apical ring present, 8 spored, spores subbiseriately arranged. Ascospores 6.7-10.5 x 1.66-2.5 μm , cylindric-allantoid, pale yellow. Paraphyses disintegrate at maturity.

Specimen Examined

Punjab: Nangal, on dead angiospermous twigs, Ramanjit, PUN (1668), March 23,1990. Patiala; Chhatbir zoological Park, on dead Angiospermous twigs, S. Kaur, PUN (496), September 21,1983; on fallen Angiospermous twigs, S. Kaur, PUN (495), September 21,1983; on dead Angiospermous twigs, M. Bhatia, PUN (961), September 24,1984; on dead Angiospermous twigs, M.Bhatia PUN (963), August 24, 1983; N.I.S.; on rotting twigs, M. Bhatia, PUN (964), September 24,1983; on rotting Angiospermous twigs, M. Bhatia, PUN (962), August 14,1985.

Remarks

The above-mentioned collection is characterised by having widely effused, black stroma with punctate surface due to slightly protruding ostioles. All these characters are of *Eutypa leioplaca* Fr. as described by Ellis and Everhart (1892) [2], but Punjab collections differ from American specimens in having slightly smaller ascospores and asci. The specimen shows some affinities with *E. milliaris* in having the same size of asci and ascospores but differs strongly in other characters.

| <i>Eutypa leioplaca</i> | <i>Eutypa milliaris</i> |
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| 1. Stromata aggregated becoming effused, sphaerical, immersed in wood, black, surface rough due to slightly protruding ostioles. | Stromata broadly effused, rounded to elongated up to 3.0 cm long, or irregularly confluent, forming narrow parallel stripes lying close together, sunken in wood, black, infected part of wood, elevated to form pustules. |
| 2. Flesh white | Flesh black |
| 3. Perithecia pyriform, embeded in the wood, ostioles slightly exerted, stellately celled | Perithecia globose, entirely burried in the wood, slightly sulcate ostioles. |
| 4. Asci clavate, sporiferous part 32.0-48.0 x 6.0- 8.0 μm , spores arranged in subbiseriate fashion | Asci clavate-cylindrical, sporiferous part 25.0 x 5.0 μm , spore arranged in uniseriate to biseriate fashion. |
| 5. Ascospores 6.7-10.5 x 1.66-2.5 μm , cylindric allantoid, pale yellow | Ascospores 7.0-9.0 x 1.5- 2.0 μm , slightly curved, hyaline |

This species was previously reported from Punjab by Dargan and Bhatia (1989).

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