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PODOSPORA PSEUDOINQUINATA SP. NOV.

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During the investigation on coprophilous fungi, a species of *Podospora* was collected on camel dung from Paradise Point, Karachi. Since this species does not fit with any of the known species, a new species *Podospora pseudoinquinata* is proposed.

Key words: *Podospora,* New species.

Introduction

Genus *Podospora* belongs to the family Sordariaceae [1-3]. Most of the species belonging to this genus are coprophilic with comparatively large perithecia found on the dung of grazing animals like cow, horse, sheep, deer, mouse and rabbit etc. The ascospores of *Podospora* possess an apical germ pore, a basal primary appendage and gelatinous secondary appendages.

During the investigation on coprophilous fungi, an interesting *Podospora* species was collected on camel dung from Paradise Point, Karachi. Microscopic examinations revealed that this species is sufficiently different from all the described species of *Podospora*, and therefore, justify its treatment as a new species. The material studies has been preserved in the Mycological Herbarium of PCSIR Laboratories Complex, Karachi.

Materials and Methods

The fungus was isolated from the dung as described in an earlier paper by Ahmed and Asad [4]. Ascospore measurements were taken in water. The length of asci included the stipe and spore bearing portion. The stipe was measured separately. The width of the asci and ascospores as well primary and secondary appendages was taken at the broadest parts.

The hyaline appendages which were difficult to see in water mounts were stained in cotton blue and Indian ink. It was not possible to study the germ pore in top view, and therefore, the measurements of the side view were taken.

Podospora pseudoinquinata Ahmed and Ahmedunisa sp. nov. Peritheciis superficialibus vel semi-immersis, sparsis vel aggregatis, sub-globosis, nigris, collo perithecii brevi, 400-650 x 400-600 µm; pilis longis, flexuosis, septatis, 400–600x2.5–3.0µm peridio perithecii tenui membranaceo. Ascis octosporis, Clavatis, 190-250 x 45-55 µm, suprene contractis et late rotundatis, inferne attenuatis in stipitem longum, annulo absentibus; paraphysibus copiosis, filiformibus, septatis, superantibus. Ascosporis biseriatis, ellipsoideis, 40-55 (-60) x 30-40 (-45) µm, initio hyalinis, olivaceis dein attro-brunneis et opacis, germinali apicali, rotundatis, 2.5-3.5 µm late; primaria appendice cylindracea, hyalina, 26-38 x 12-16 µm ad basem ascosporae alligata; secundaria et superiore appendice ad apicem ascosporae excentrice alligata, simili flagello, basi lata 4.5-5.0 µm; secundaria et inferiore similibus (Figs. 1-3).

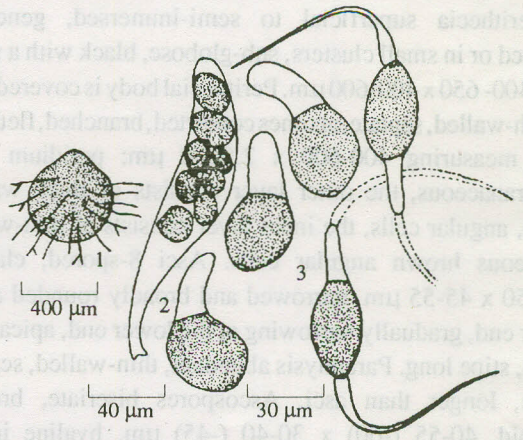

Fig. 1. (i). Perithecium; with hairs; (ii) Ascus with 8 ascospores; (iii) Ascospores with primary and secondary appendages.

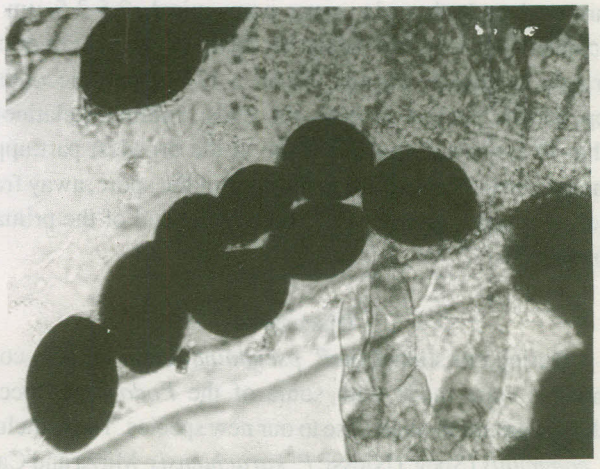

Fig. 2. Photomicrograph showing the arrangement of ascospores within the ascus.

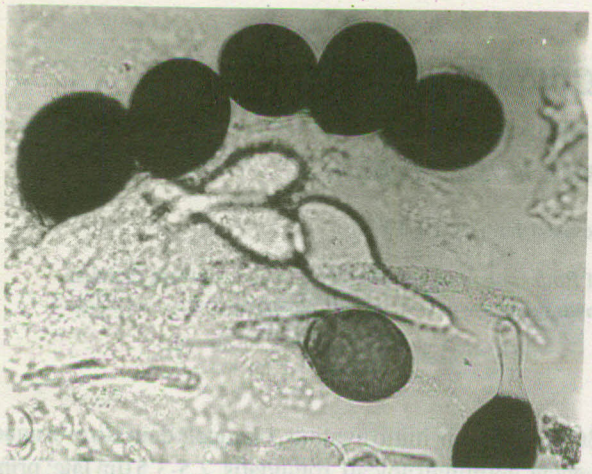

Fig. 3. Photomicrograph showing the shape of ascospores with remants of appendages.

Holotype: in fimo camelus, Mycological Herbarium of PCSIR Laboratories Complex, Karachi (No.437).

Perithecia superficial to semi-immersed, generally scattered or in small clusters, sub-globose, black with a small neck, 400- 650 x 400-600 µm. Perithecial body is covered with smooth-walled, septate, at times contorted, branched, flexuous hairs, measuring 400-600 x 2.5-3.0 µm; peridium thin, membranaceous, the outer layer consists of thick walled, brown, angular cells, the inner layer consists of thin-walled olivaceous brown angular cells. Asci 8-spored, clavate, 190-250 x 45-55 µm, narrowed and broadly rounded at the supper end, gradually narrowing at the lower end, apical ring absent, stipe long. Paraphysis abundant, thin-walled, septate, fragile, longer than asci. Ascospores biseriate, broadly ellipsoid, 40-55 (-60) x 30-40 (-45) µm, hyaline in the beginning becoming olivaceous brown and finally dark brown and opaque at maturity, broadest in the middle, narrowed at both ends, germ pore apical, 2.5-3.5 µm in diameter. Primary appendage at the lower end, cylindrical, straight to slightly curved, 26-38 x 12- 16 µm. Secondary appendages present at both the ends, hyaline, gelatinous, whip-like, measuring 4.5-5.0 µm at the broadest part;upper one eccentrically attached to the apex of the spore, away from the germ pore, lower one attached at the end of the primary appendage.

Discussion

During our studies on *P. pseudoinquinata* sp. nov. comparisons were made with some of the *Podospora* species which were somewhat close to our new species. These include *P. communis* (Speg.) Niessl, *P. karachiensis* Mirza and Cain, *P. pyriformis* (Bayer) Cain and *P. inquinata* Ueda and Udagawa. Necessary comparisions have been made in the following.

The neck of the perithecium of *P. communis* (Speg.) Niessl is prominantly longer as compared to *P. pseudoinquinata* sp. nov. The ascospores of *P. communis* (Speg.) Niessl (28-36x17-21 µm.) are distinctly smaller as compared to our new species (40-55x30- 40 µm.). Over and above, the spores in *P. communis* (Speg.) Niessl has 4 secondary apendages at both ends of the ascospore, whereas, *P. pseudoinquinata* sp. nov. has only 1 secondary appendage at each end of the ascospore. On the basic of these grounds *P.pseudoinquinata* sp. nov. is considered altogether a different species.

Perithecium of *P. pyriformis* (Bayer) Cain (800-1200x 500-700 µm.) is much larger as compared to subglose perithecium of *P. pseudoinquinata* sp. nov. (400-650x400-600 µm.) The perithecium is hairless in the case of *P. pyriformis* (Bayer) Cain whereas in *P. pseudoinquinata* sp. nov. the perithecium body is covered with smooth walled septate, branched hairs. The asci in *P. pyriformis* (Bayer) Cain are much longer (400-450x45-65µm) as compared to *P. pseudoinquinata* sp. nov. (190-250x45-55 µm.). On these grounds *P. pyriformis* (Bayer) Cain and *P. pseudoinquinata* sp. nov. are considered altogether different.

The perithecium in *P. karachiensis* Mirza and Cain is bare, whereas in *P. pseudoinquinata* sp. nov. the entire body of the perithecium is covered with hairs. In *P. karachinesis* Mirza and Cain the neck of the perithecium is covered with hairs whereas in *P. pseudoinquinata* sp. nov. the neck is without hairs.

The ascospores in *P. karachiensis* Mirza and Cain are very small in size (16-30x12-19 µm.) as compared to *P. pseudoinquinata* sp. nov. (40-55x30-40 µm). Due to the differences in perithecium and drastic differences in spore size *P. karachiensis* Mirza and Cain and *P. pseudoinquinata* sp. nov. are considered altogether different species.

Podospora inquinata Udagawa and Ueda [5] reported on marine sediments from Nagasaki Bay, Japan is the closest one to our new species. It is important to note that the substrate for both the species is distinctly different. The perithecia of *Podospora inquinata* have been reported as pyriform, whereas, in *P. pseudoinquinata* they are sub-globose. Besides the difference in the shape of perithecio of the two species, there is corresponding difference in their measurements (*P.inquinata* 400-500x 280- 400 µm, *P. pseudoinquinata* 400-650x 400-600 µm); in *P. inquinata* the lower portion of the perithecium is covered with scatte- red flexous hairs, whereas, in *P. pseudoinquinata* abundant hairs are present on the entire body of the perithecium excluding the neck. The hairs are septate, branched and measure 400-600 x 2.5-3.0 µm. As far as the measurements of asci are concerned, *P. pseuodoinquinata* distinctly differs from those of *P. inquinata*.

The ascospore measurements are 40-55 (-60)x30-40

(-45) µm for *P. pseudoinquinata* and (22.5-) 25-30 (-34) x (15-) 18-20 (-25) for *P. inquinata*. In addition to the difference in size, very often the ascospores in *P. pseudoinquinata* are found to be relatively wider, as regards the length and width ratio of the ascospores. These spores are rounded at the upper end. Keeping in view the differences found between the two species particularly the difference in size of asci and ascospores as well as the overall shape of the ascospores, the establishments of *P. pseudoinquinata* is justified.

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