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**A REDELIMITATION OF THE SPECIES OF PILOBOLUS**

***HU FU-MEI, ZHENG RU-YONG and CHEN GUI-QING***

**Systematic Mycology & Lichenology Laboratory, Institute of Microbiology, Academia Sinica, Beijing**

ABSTRACT: Nine species of *Pilobolus* were accepted by Zheng & Hu (in Tai, 1979). All of these were collected and studied recently. Though they are distinguishable from each other, in this paper they are re delimited as five species comprising nine varieties in order to achieve concordance with the other genera of the Mucorales where the existing species concept for classifying *Pilobolus*, including ours in the past, is too small and needs revising. The taxa new accepted are: *Pilobolus crystallinus* (Wigg.) Tode var. *crystallinus*; *P. crystallinus* var. *hyalosporus* (Boedijn) Hu & Zheng, comb. nov. ; *P. crystallinus* var. *kleinii* (van Tieghem) Zheng & G.-q. Chen, comb. nov.; *P. lentiger* Corda var. *lentiger*; *P. lentiger* var. *minutus* (Speg.) Zheng & G.-q. Chen, comb. nov.; *P. longipes* van Tieghem; *P. oedipus* Mont.; *P. roridus* (Bolt.) Pers. Var. *roridus*; *P. roridus* var. *umbonatus* (Buller) Hu & Zheng, comb. nov. A study of the diagnoses given in the literature of some synonyms, which were referred to different taxa by different authors, was made to determine their correct placement. Twelve names are listed here as doubtful since no diagnoses could be found or no conclusion could be drawn from the diagnoses. These include: *Mucor obliquus* Scop., *M. urceolatus* Dicks., *Pilobolus urceolatus* Purt., *P. pestis-bovinae* Hallier (= *P. hallierii* Rivolta), *P. nanus* van Tieghem, *P. intermedius* (Coem.) P. A. Karsten (= *P. oedipus* var. *intermedius* Coem.), *P. pullus* Masee, *P. proliferens* McVickar, *P. lentiger* forma *minutus* Reyn. & Laysa.