

---

## ***Koorchaloma novojournalis* sp. nov., a new sporodochial fungus from Hong Kong**

---

**Yanna\*, Kevin D. Hyde and Teik-Khiang Goh**

Fungal Diversity Research Project, Department of Ecology and Biodiversity, The University of Hong Kong, Pokfulam Road, Hong Kong; \* email: yanna@hkusua.hku.hk

Yanna, Hyde, K.D. and Goh, T.K. (1998). *Koorchaloma novojournalis* sp. nov., a new sporodochial fungus from Hong Kong. *Fungal Diversity* 1: 193-197.

*Koorchaloma novojournalis* sp. nov. is described and illustrated based on a specimen collected on decaying petioles of *Arenga engleri* in Hong Kong. It differs from other described species of *Koorchaloma* in having larger conidia with mucoid appendages at both ends and in having distinct conidiophores. *Koorchaloma novojournalis* is compared with all other species of *Koorchaloma*.

### **Introduction**

*Koorchaloma* Subramanian (1953) was erected based on *K. madreeya* Subram., the type species. This genus is characterized by sporodochioid to acervular conidiomata, with interspersed setae, and fusiform conidia which bear mucoid appendages at both ends or only at the apex (Nag Raj, 1984, 1992). A similar genus, *Koorchalomella* Chona, is closely related to *Koorchaloma*, but differs by the absence of setae (Nag Raj, 1984). The genus *Koorchaloma* has been reviewed by Nag Raj (1984) who included five species, namely *K. bambusae* Nag Raj, *K. jamaicense* Nag Raj, *K. madreeya* Subram., *K. occidentale* Nag Raj, and *K. okamurae* Hino and Katum. (Hino, 1961; Nag Raj, 1984).

We are studying the fungi occurring on tropical palm species and have described several species new to science (Goh and Hyde, 1996; Hyde and Fröhlich, 1997; Yanna, Hyde and Fröhlich, 1997; Yanna, Hyde and Goh, 1998), we identified an undescribed species of *Koorchaloma* on the petioles of *Arenga engleri* Becc. from Hong Kong. Our species differs from all other species of *Koorchaloma* (Nag Raj, 1992) in having distinct conidiophores, and larger conidia which bear mucoid appendages at both apical and basal ends. It is therefore described as a new species in this paper.

## Taxonomy

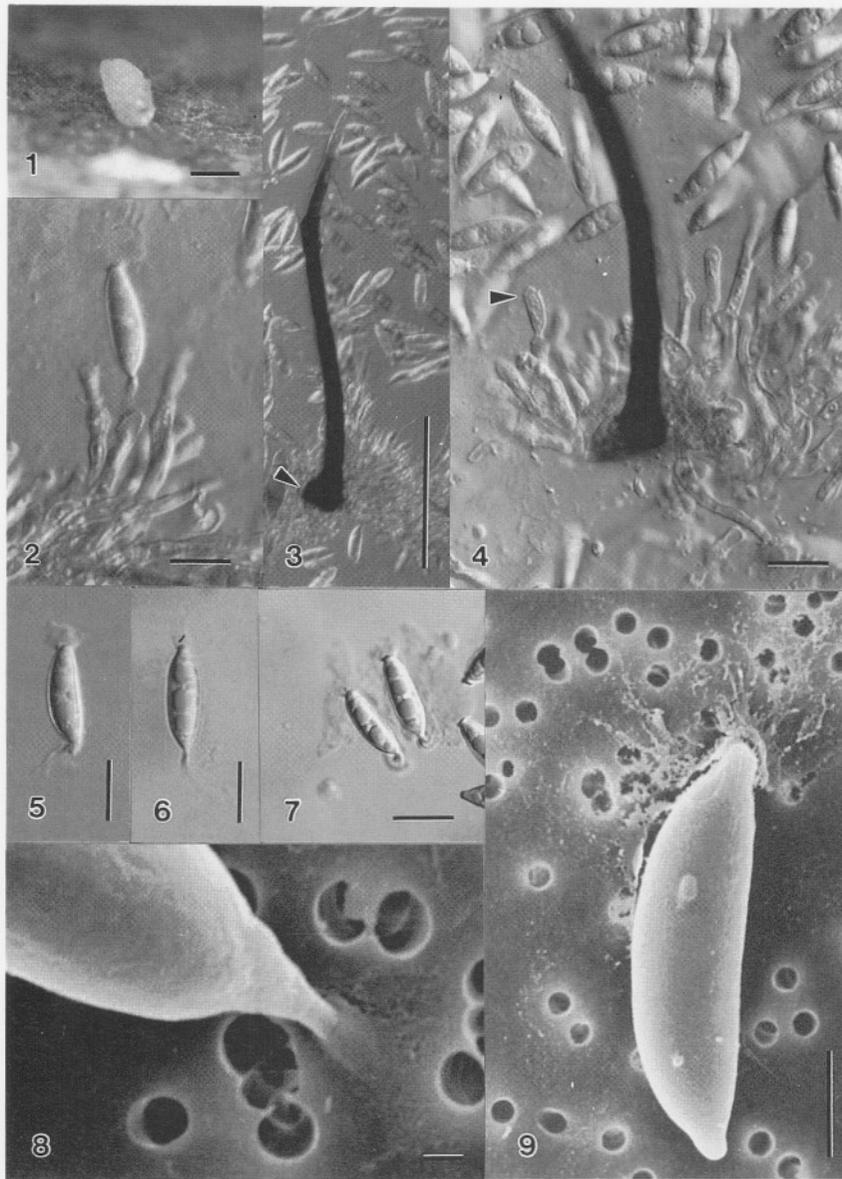
***Koorchaloma novojournalis*** Yanna, K.D. Hyde and Goh, sp. nov. (Figs. 1-9)

*Etymology*: *novojournalis*, referring to the newly established mycological journal, Fungal Diversity.

*Conidiomata* stromatica, punctiformia, dispersa, superficialia, alba vel flavida, gelationosa, usque 500  $\mu\text{m}$  in diametro et 1500  $\mu\text{m}$  alta. *Mycelium* superficiale vel in substrato immersum, ex hyphis ramosis, septatis, laevibus, hyalinis, ca 2  $\mu\text{m}$  latis compositum. *Stromata* parva, ex cellulis isodiametricibus, hyalinis vel pallide brunneis composita. *Setae* penitus conidiomatis interspersae, sterile, solitariae, non-ramosae, erectae, rectae vel leniter curvatae, laeves, crassitunicatae, septatae, brunneae, ad apicem pallidiorae, 110-182  $\mu\text{m}$  longae, 3-5  $\mu\text{m}$  latae, ad basem tumidosae et 10-20  $\mu\text{m}$  latae, apicem versus attenuatae et leniter tumidosae, interdum percurrenter crescentes. *Conidiophora* macronematosa, in sporodochialibus composita, erecta, ramosa, tenuitunicata, laevia, hyalina, 17-37  $\times$  2-4  $\mu\text{m}$ , percurrenter crescentia. *Cellulae conidiogenae* discretiae, monoblasticae, terminales, subcylindricae, cum collario, laeves, hyalinae, 10-20  $\times$  2-4  $\mu\text{m}$ . *Conidia* 16-21  $\times$  4-7  $\mu\text{m}$ , solitaria, fusiformia, ad apicem acuta, ad basim anguste truncata, laevia, hyalina, utrinque appendices mucosas ferentia, in masso gregaria. *Conidiorum secessio* schizolytica.

*Holotypus*: HONG KONG, Victoria Peak, in petiolo putrido *Arenga engleri*, 20 Sep. 1997, Yanna YAN 155 Aa (HKU(M) 7436).

*Conidiomata* stromatic, punctiform, scattered, superficial, off-white to yellow, gelatinous, up to 500  $\mu\text{m}$  diam., 1500  $\mu\text{m}$  high (Fig. 1). *Mycelium* superficial or immersed in the substratum, composed of branched, septate, smooth, hyaline, ca 2  $\mu\text{m}$  wide hyphae. *Stromata* small, consisting of hyaline to pale brown isodiametric cells, which are ca 2  $\mu\text{m}$  diam. from which the setae and conidiophores arise. *Conidiomatal setae* interspersed throughout the conidioma, sterile, arising singly, unbranched, erect, straight or slightly curved, smooth, thick-walled, septate, brown, paler towards the apex, 110-182  $\mu\text{m}$  long ( $\bar{x}$  = 125  $\mu\text{m}$ ,  $n$  = 15), 3-5  $\mu\text{m}$  wide ( $\bar{x}$  = 3.8  $\mu\text{m}$ ,  $n$  = 15), swollen at the base which is 10-20  $\mu\text{m}$  wide ( $\bar{x}$  = 15  $\mu\text{m}$ ,  $n$  = 15), attenuating to the apex which is rounded or slightly swollen, occasionally with percurrent regenerations (Figs. 3-4). *Conidiophores* macronematous, compacted in the sporodochium, erect, branched, thin-walled, smooth, hyaline, 17-37  $\times$  2-4  $\mu\text{m}$  ( $\bar{x}$  = 24.2  $\times$  3  $\mu\text{m}$ ,  $n$  = 25), sometimes with percurrent regenerations (Fig. 2). *Conidiogenous cells* discrete, monoblastic, terminal, subcylindrical, with flared collarettes, smooth, hyaline, 10-20  $\times$  2-4  $\mu\text{m}$  ( $\bar{x}$  = 14.3  $\times$  3  $\mu\text{m}$ ,  $n$  = 25), producing conidia which aggregate in slimy masses. *Conidia* solitary, fusiform with an acute apex and a narrow, truncate base, with mucoid appendages at both ends, smooth, hyaline, 16-21  $\times$  4-7  $\mu\text{m}$  ( $\bar{x}$  = 19.2  $\times$  5.2  $\mu\text{m}$ ,  $n$  = 25) with mean conidium length/width ratio = 3.5:1 (Figs. 5-9). *Conidial secession* schizolytic.



**Figs. 1-9.** *Koorchaloma novojournalis* (2-7. Interference contrast micrographs; 8-9. Scanning electron micrographs). 1. A sporodochium with a mass of conidia on natural substratum. 2. Squash mount of conidiophores. 3. Squash mount illustrating seta and conidiophores on a stroma, and conidia. A seta with a swollen base (arrowed) is paler towards the apex. 4. Aggregation of conidiophores around a seta, with developing conidia. Note the flared collarette (arrowed). 5-7. Fusiform conidia with mucoid appendages at both ends. 8, 9. Conidia with mucoid appendages attached to the membrane surfaces. Bars: 1 = 500  $\mu\text{m}$ ; 3 = 50  $\mu\text{m}$ ; 2, 4, 5-7 = 10  $\mu\text{m}$ ; 8, 9 = 5  $\mu\text{m}$ .

**Table 1.** A comparison of accepted species of *Koorchaloma*.

	<i>K. bambusae</i>	<i>K. jamaicense</i>	<i>K. madreya</i>	<i>K. novojournalis</i>	<i>K. occidentale</i>	<i>K. okamurae</i>
<b>Setae</b>						
Length <sup>a</sup>	80-160	80-170	100-350	110-182	35-130	Up to 200
Width at base <sup>a</sup>	7-9	13-15	8-12	10-20	7-11	9-10
Width at apex <sup>a</sup>	3-5.5	3-7	4-6	3-5	2.5-3.5(-4)	5-7
Swollen at apex	-	-	+	+/-	-	+
<b>Size of conidiogenous cells</b>	6-11 x 2.5-3.5(-4)	6-11(-12) x 2.5-3	11-20 x 3-4	10-20 x 2-4	7-15 x 2-3	11-19(-25) x 2.5-3.5
<b>Conidiophores reduced to conidiogenous cells</b>	+	+	-	-	-	-
<b>Conidia</b>						
Size <sup>a</sup>	9-13 x 3.5-5	12-19 x 2.5-3.5	11-17 x 3-4.5	16-21 x 4-7	9-15 x 2.5-3.5	10-14 x 3.5-5
Shape	Fusiform	Fusiform	Fusiform	Fusiform	Fusiform	Fusiform
Length to width ratio	2.7:1	5.3:1	3.7:1	3.5:1	4:1	2.8:1
Appendage						
Apical	+	+	+	+	+	+
Basal	+	+	-	+	+	-
<b>Hosts</b>	<i>Bambusa</i> sp.	Grass blades	<i>Oryza sativa</i>	<i>Arenga engleri</i>	Grass blades	<i>Sinobambusa tootsik</i>

<sup>a</sup> = Measurements in  $\mu\text{m}$ .

## Discussion

Conidiophores in species of *Koorchaloma* are distinct except in *K. bambusae* and *K. jamaicense*, in which the conidiophores are reduced (Nag Raj, 1984, 1992). Conidia in *Koorchaloma* species bear mucoid appendages at both ends except in *K. madreya* and *K. okamurae*, in which they occur only at the apex (Nag Raj, 1984, 1992). *Koorchaloma occidentale* is closest to *K. novojournalis* in producing distinct conidiophores and conidia with appendages at both ends. The conidia of *K. novojournalis* (16-21 × 4-7 µm) are, however, larger than those of *K. occidentale* (9-15 × 2.5-3.5 µm). The synopsis of 6 accepted species of *Koorchaloma* is provided in Table 1.

## Acknowledgements

Dr. Wilson Wong of the Department of Ecology and Biodiversity and the staff of the Electron Microscope Unit in the Queen Mary Hospital are greatly thanked for technical assistance in electron microscopy. The University of Hong Kong is thanked for the award of a Postdoctoral Fellowship and Postgraduate Studentship to T.K. Goh and Yanna respectively.

## References

- Goh, T.K. and Hyde, K.D. (1996). A new species of *Nectria* from *Mauritia flexuosa* (Arecaceae) in Ecuador and a key to *Nectria* and allied genera on palms. *Mycoscience* 37: 277-282.
- Hino, I. (1961). *Icones fungorum bambusicolorum Japonicorum*. The Fuji Bamboo Garden, China.
- Hyde, K.D. and Fröhlich, J. (1997). Fungi from palms XXXVII. The genus *Astrosphaeriella*, including ten new species. *Sydowia* 50: 81-132.
- Nag Raj, T.R. (1984). *Koorchaloma*, *Koorchalomella*, and *Kananascus* gen. nov. *Mycotaxon* 19: 167-212.
- Nag Raj, T.R. (1992). Coelomycetous anamorphs with appendage-bearing conidia. University of Waterloo, Ontario, Canada.
- Subramanian, C.V. (1953). A new genus of the Tuberculariaceae. *Journal of Indian Botany Society* 32: 123-126.
- Yanna, Hyde, K.D. and Fröhlich, J. (1997). A new species of *Appendicosopora* from Hong Kong. *Mycoscience* 38: 395-397.
- Yanna, Hyde, K.D. and Goh, T.K. (1998). *Staurophoma calami*, a new coelomycete from Hong Kong. *Sydowia* 50: 139-143.