

Reflections on the genus *Vanakripta*, and a description of *V. ellipsoidea* sp. nov.

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Abstract: The genus *Vanakripta* (hyphomycetes) is reviewed based on the examination of type specimens, and *V. ellipsoidea* sp. nov. is described on submerged wood from Hong Kong. *Vanakripta* is characterized by punctiform sporodochial colonies, micronematous conidiogenous cells and pigmented conidia with vermiform separating cells. *Vanakripta* is compared with similar genera, and a synopsis of its morphological characters is provided.

Key Words: aquatic fungi, freshwater, lignicolous, mitosporic fungi, systematics

INTRODUCTION

Submerged wood in freshwater environments supports a high diversity of fungi and several novel taxa have been described from tropical and subtropical regions (Hyde and Goh 1998, Tsui et al 2001). During our investigation of lignicolous fungi in freshwater habitats in Hong Kong (Tsui et al 2000), we collected an interesting mitosporic fungus that we named *Vanakripta* sp. We examined type material of all *Vanakripta* species from National Mycological Herbarium of Canada (DAOM), and as a result accept three species in *Vanakripta*, including *Vanakripta ellipsoidea* sp. nov. described in this paper.

TAXONOMY

Vanakripta ellipsoidea K. M. Tsui, Goh et K. D. Hyde,
sp. nov. FIGS. 1–12

Coloniae in substrato naturali sporodochiales 150–180 μm diam. Conidiophora micronemata, cylindrica, aseptata, simplicia vel sparse ramosa, laevia, hyalina. Cellulae conidiogenae in conidiophoris incorporatae, terminales, determinatae, cylindricae. Cellulae separabiles 30–72 \times 11–16 μm , vermiformes, clavatae vel hyalinae. Conidia 33–42 \times

20–25 μm , acrogena, solitaria, aseptata, ellipsoidea vel late-fusiformia, laevia, brunnea vel atra. Conidiorum secessio rhexolytica.

Colonies on natural substratum sporodochial, 150–180 μm diam, scattered, black (FIGS. 1, 2). Mycelium mostly immersed in the substratum, composed of septate, hyaline hyphae. Conidiophores micronematous, ca 15–20 \times 2 μm , hypha-like, short cylindrical, aseptate, simple or sparsely branched, smooth, hyaline (FIGS. 1, 2). Conidiogenous cells integrated, terminal, determinate. Separating cells 30–72 \times 11–16 μm , hyaline, clavate to vermiform. Conidia 33–42 \times 20–25 μm , acrogenous, solitary, ellipsoid to broadly fusiform, with a rounded tip, smooth, dark brown to black, aseptate, smooth-walled (FIGS. 3–10). Conidial secession rhexolytic (FIGS. 11, 12). Single spore isolation was attempted but not successful.

Etymology. The Latin *ellipsoidea*, in reference to the shape of the conidia.

Specimen examined. CHINA. HONG KONG: Tai Po, Bride's Pool, on submerged wood, Mar 1999, K. M. Tsui, KM296 (HKU(M) 12378), *ibid.*, Sai Kung, Hang Cho Shui, on submerged wood, Sep 1998, K. M. Tsui, KM 296 (HKU(M) 12234).

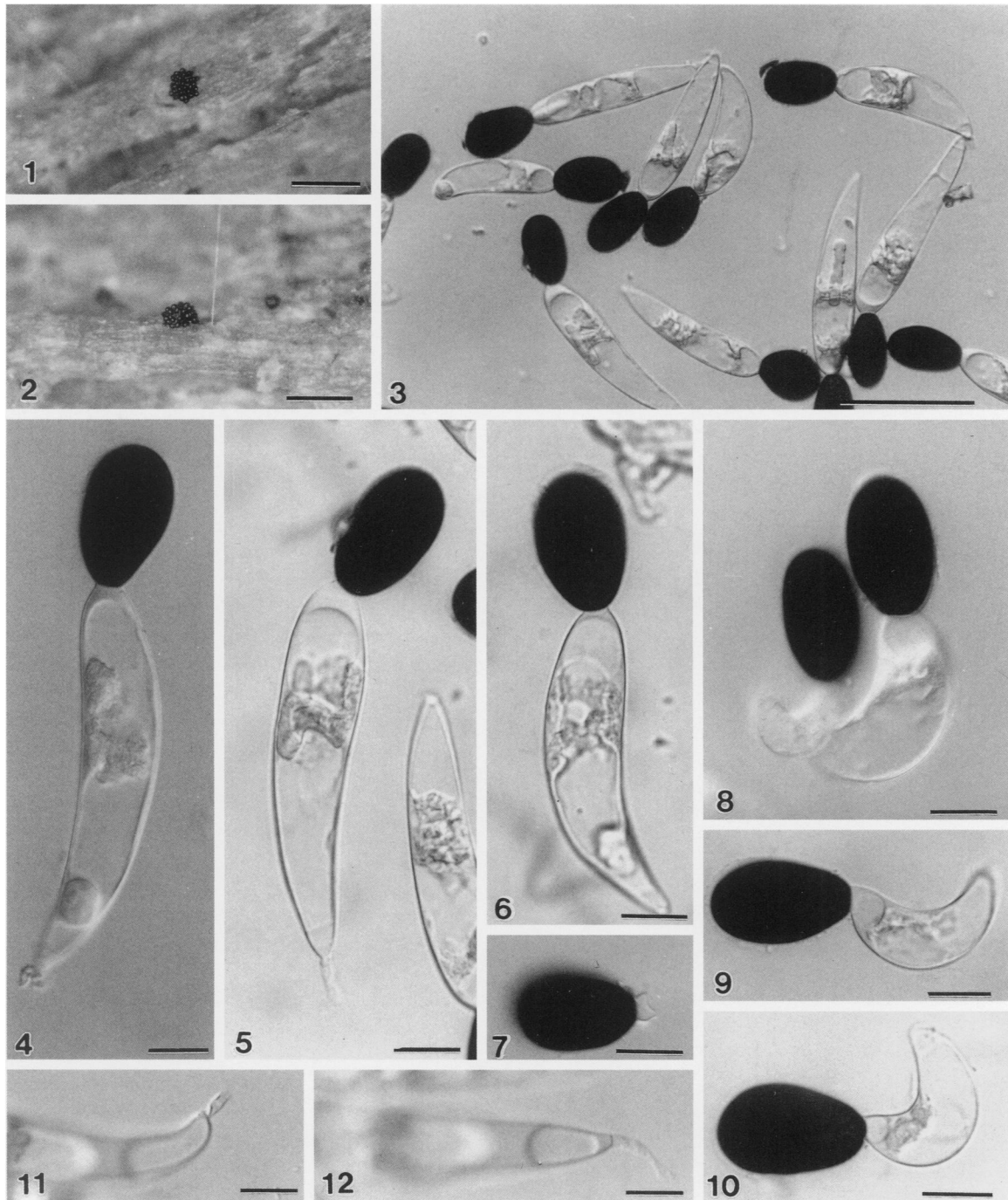
Vanakripta parva Bhat, W. B. Kendr. et Nag Raj, Mycotaxon 49:77 (1993) FIGS. 13–18

Colonies on natural substratum sporodochial, punctiform, scattered, black (FIG. 13). Conidiophores micronematous, simple, indistinct, borne on superficial hyphae. Conidiogenous cells integrated, terminal. Separating cells 20–40 \times 4–5 μm , hyaline, vermiform (FIGS. 14–16). Conidia acrogenous, 7–10 \times 4–6 μm , ovoid to broadly fusiform, smooth, brown to dark brown, aseptate (FIGS. 17, 18). Conidial secession rhexolytic.

Specimen examined. INDIA. GOA STATE: Cotigao Wildlife Sanctuary, on dead twig, 28 July 1991, D. J. Bhat (DAOM 214617, HOLOTYPE).

Vanakripta gigaspora Bhat, W. B. Kendr. et Nag Raj, Mycotaxon 49:76 (1993) (FIGS. 19–22)

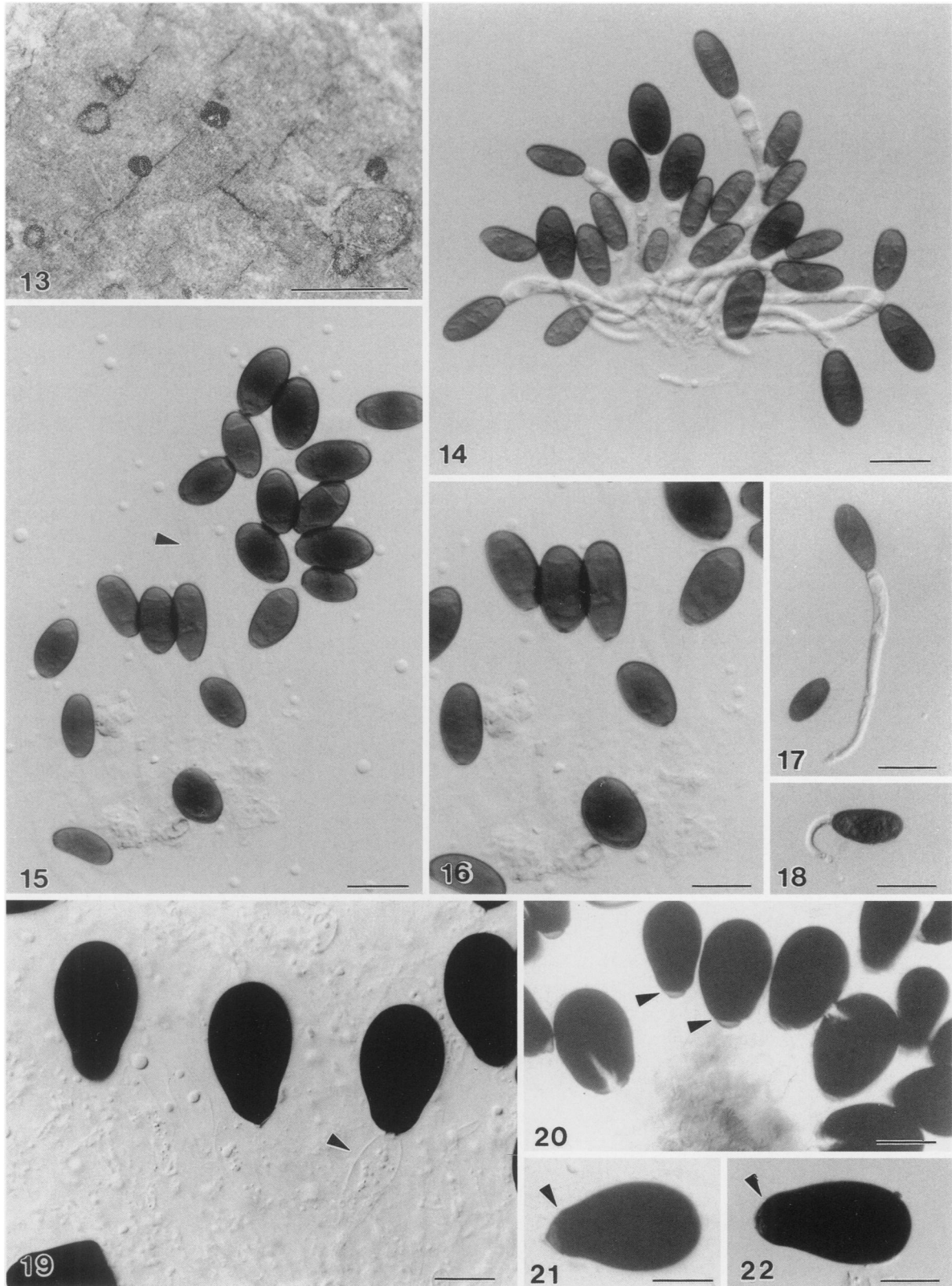
Colonies on natural substratum sporodochial, effuse, scattered, black. Conidiophores micronematous, indistinct, hyaline. Separating cells hyaline, vermiform, 18–70 \times 6–8 μm , smooth (FIGS. 19, 20). Conidia acrogenous, 33–40 \times 19–23 μm , ellipsoidal to broadly fusiform, with a submedian septum, smooth, dark brown to black, basal cell pale brown (FIGS. 21, 22). Conidial secession rhexolytic.



FIGS. 1-12. Light (1, 2) and differential interference contrast micrographs of *Vanakripa ellipsoidea* (from holotype). 1, 2. Colonies on wood (light micrographs). 3-10. Conidia bearing vermiform separating cells. 11, 12. Separating cells with frills of detached conidiogenous cells. Scale bars: 1-2 = 300 μ m, 3 = 70 μ m, 4-12 = 20 μ m.

TABLE I. A synopsis of described *Vanakripa* species

Species	Conidia	Separating cells
<i>V. ellipsoidea</i>	33-42 \times 20-25 μ m, ellipsoidal, aseptate	30-72 \times 11-16 μ m, vermiform
<i>V. gigaspora</i>	33-40 \times 19-23 μ m, ellipsoid, with a submedian septum	18-70 \times 6-8 μ m, vermiform
<i>V. parva</i>	7-10 \times 4-6 μ m, ovoid to broadly fusiform, aseptate	20-40 \times 4-5 μ m, vermiform to cylindrical



FIGS. 13–18. Light (13) and differential interference contrast micrographs of *Vanakripa parva* (from holotype). 13. Colonies on wood. 14–18. Conidia bearing separating cells (arrowed). 19–22. *Vanakripa gigaspora* (from holotype). 19. Conidia bearing vermiform separating cells (arrowed). 20–22. Uniseptate conidia. Scale bars: 13 = 500 μm , 14, 17, 18 = 8 μm , 15 = 10 μm , 16 = 6 μm , 19, 20 = 18 μm , 21, 22 = 15 μm .

Specimen examined. INDIA. GOA STATE: Molem Wildlife Sanctuary, on dead twig, 30 Jul 1991, D. J. Bhat (DAOM 214616, HOLOTYPE).

Notes. *Vanakripa* currently includes *V. gigaspora* Bhat, W. B. Kendr. et Nag Raj and *V. parva* Bhat, W. B. Kendr. et Nag Raj (Bhat and Kendrick 1993). *Vanakripa ellipsoidea* produces black conidia with hyaline, obpyriform separating cells and is a third species in the genus. *Vanakripa ellipsoidea* differs from *V. gigaspora* in having aseptate conidia, and is distinguished from *V. parva* in having ellipsoidal and consistently larger conidia.

We have examined type material of *V. parva* and *V. ellipsoidea* and considered that the obpyriform conidiogenous cells described by Bhat and Kendrick (1993) do not in fact proliferate or produce conidia. It is possible that the conidiophores in *Vanakripa* are micronematous and barely distinguishable from the vegetative hyphae. The tips of conidiophores are then blown out to form separating cells which bear conidia (*sensu* Pirozynski 1963). The separating cells may detach from the conidia during their release. However, further ontogeny studies are required to resolve the mechanism of conidia production. Conidium-bearing separating cells at the base of conidia are typically found in *Beltrania* Penz., *Beltraniopsis* Bat. & J. L. Bezerra and *Beltraniella* Subram. (Pirozynski 1963), and have also been observed in *Berkleasmiium corticola* (Karst.) Moore (Moore 1959, Sharma 1980), *Canalisporium caribense* (Hol.-Jech. et Mercado) Nawawi et Kuthub., *C. elegans* Nawawi & Kuthub. (Goh et al 1998) and *Oncopodium paspali* R. F. Castañeda Ruíz, Guarro et Cano (Ruíz et al 1997). These taxa are commonly found in freshwater habitats (Goh et al 1998, Tsui et al 2000), and it would therefore be interesting to establish whether the vesiculate separating cells are adaptations for conidial dispersal and floatation.

Vanakripa resembles *Berkleasmiium* Zobel, *Canalisporium* Nawawi & Kuthub. and *Dictyosporium* Corda under a stereomicroscope, in having punctiform, shiny sporodochial colonies on the natural substratum. These genera also have micronematous conidiophores and pigmented conidia. When examined

under higher magnification, *Berkleasmiium* and *Canalisporium* are, however, easily distinguished because their conidia are muriform (Moore 1959, Goh et al 1998). *Dictyosporium* is characterized by cheiroid conidia with multiple columns of cells, which lack separating cells attached at the base of conidia (Goh et al 1999).

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