Short Communication

**TSUCHIYAEA GEN. NOV., AN ANAMORPHIC YEAST
GENUS FOR THE Q₉-EQUIPPED ORGANISM WHOSE
REPRODUCTION IS EITHER BY ENTEROBLASTIC
BUDDING OR BY THE FORMATION OF CONIDIA
WHICH ARE DISJOINTED AT A SEPTUM IN
THE MID-REGION OF THE STERIGMATA
AND WHOSE CELLS CONTAIN XYLOSE¹**

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After transferring the Q₁₀-equipped *Sterigmatomyces* species to the genus *Fellomyces* Yamada et Banno, the following two species were left in the genus *Sterigmatomyces* Fell emend. Yamada et Banno (1, 2): *Sterigmatomyces elviae* Sonck et Yarrow and *Sterigmatomyces halophilus* Fell (type species). A third species, *Sterigmatomyces wingfieldii* van der Walt, Yamada et Ferreira has been described in this genus (3). These anamorphic yeast species are characterized either morphologically by producing conidia which are disjointed at a septum in the mid-region of the sterigmata or chemotaxonomically by the Q-9 system.

During the course of the analysis of xylose in the whole cell hydrolyzates of these organisms, the genus *Sterigmatomyces* has been divided into two groups based on the presence or absence of xylose in the cells. This paper proposes *Tsuchiyaea*, a new anamorphic yeast genus for the organism characterized by the presence of

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Table 1. Groupings of the species in the genus *Sterigmatomyces* Fell emend. Yamada et Banno.

Species and strain	Other designation	Co-Q system ^a	Xylose ^b (%)
Group I			
<i>S. elviae</i> Sonck et Yarrow (1969)			
JCM 1822 ^T	= CBS 5922, IFO 1843	Q-9	— ^c
<i>S. halophilus</i> Fell (1966)			
JCM 6905 ^T	= CBS 4609, IFO 1488	Q-9	— ^c
Group II			
<i>S. wingfieldii</i> van der Walt, Yamada et Ferreira (1987)			
JCM 7368 ^T	= CBS 7118, IFO 10204	Q-9	9.3

Abbreviations: JCM, Japan Collection of Microorganism, Institute of Physical and Chemical Research, Wako, Japan; CBS, Centraalbureau voor Schimmelcultures, Delft, The Netherlands; IFO, Institute for Fermentation, Osaka, Osaka, Japan.

^a Coenzyme Q or ubiquinone: Q-9 or Q₉ and Q-10 or Q₁₀, coenzyme Q or ubiquinone homologues with 9 and 10 isoprene units, respectively, in a side chain. The data from YAMADA and BANNO (1) and VAN DER WALT et al. (3).

^b Xylose content in total carbohydrates. The data were obtained as described previously (4) except for using a Toyo Soda TSK-gel Amide-80 column with a solvent system of acetonitrile-water (7:3, by volume) as a mobile phase.

^c Not detected. The data from YAMADA et al. (5).

^T Type strain.

xylose in the cells, formerly classified in the genus *Sterigmatomyces*.

Sterigmatomyces wingfieldii JCM 7368 (type strain) was analyzed for xylose in the whole cell hydrolyzates, as described previously (4). As shown in Table 1, *S. wingfieldii* was chemotaxonomically discriminated from the other two *Sterigmatomyces* species, viz., *S. elviae* and *S. halophilus*, by the presence of xylose in the cells. These data coincided with those obtained in *Fellomyces* species except for *Kurtzmanomyces nectairei* (Rodrigues de Miranda) Yamada, Itoh, Kawasaki, Banno et Nakase (5). However, this species can be discriminated from *Fellomyces* species by the Co-Q system (Table 2).

According to VAN DER WALT et al. (3), *S. wingfieldii* is morphologically unique in reproducing either by enteroblastic budding or by the formation of conidia which are disjointed at a septum in the mid-region of the sterigmata. These morphological characters are different from other *Sterigmatomyces*, *Kurtzmanomyces*, and *Fellomyces* species (6).

The presence or absence of xylose in the cells has recently been utilized as an important criterion for classifying basidiomycetous yeasts and yeast-like fungi at the generic level (7-9).

So *Sterigmatomyces wingfieldii* should not be included in the genus *Sterigmatomyces* and is assigned instead to a new separate anamorphic yeast genus (Table 2). The genus is named in honor of Dr. T. Tsuchiya, Professor Emeritus of Medical School, Juntendo University, Tokyo, Japan, in recognition of his contri-

Table 2. Some characteristics differentiating the conidium-forming anamorphic yeast genera *Sterigmatomyces*, *Tsuchiyaea*, *Kurtzmanomyces*, and *Fellomyces*.

Genus	Asexual reproduction by ^a	Co-Q system ^b	Xylose in cells ^c	Species accepted
<i>Sterigmatomyces</i> Fell emend. Yamada et Banno	Conidium disjointed in mid-region of sterigma	Q-9	—	<i>S. elviae</i> , <i>S. halophilus</i>
<i>Tsuchiyaea</i> Yamada, Kawasaki, Itoh, Banno et Nakase	Enteroblastic bud and conidium disjointed in mid-region of sterigma	Q-9	+	<i>T. wingfieldii</i>
<i>Kurtzmanomyces</i> Yamada, Itoh, Kawasaki, Banno et Nakase	Conidium liberated at end-break in sterigma branching to form additional conidia	Q-10	—	<i>K. nectairei</i>
<i>Fellomyces</i> Yamada et Banno emend. Yamada et Banno	Conidium liberated at end-break in sterigma	Q-10	+	<i>F. fuzhouensis</i> , <i>F. penicillatus</i> , <i>F. polyborus</i>

^a The data from FELL et al. (6) and VAN DER WALT et al. (3).

^b The data from YAMADA and BANNO (1, 2) and VAN DER WALT et al. (3).

^c The data from YAMADA et al. (5) and the present work.

butions to yeast taxonomy, especially serological classification of yeasts.

Tsuchiyaea Yamada, Kawasaki, Itoh, Banno et Nakase gen. nov.

Genus ad Cryptococcaceae pertinet. Cellulae globosae, ovoideae vel cylindricae, propagantes formatione gemmarum enteroblasticarum aut conidorum. Conidium singulare in apicem sterigmatis formatur et ad septum medipartum sterigmatis sine projectione liberatur. Ballistosporae absunt. Probatio diazonii caerulei B positiva. Xylosum in cellulis adest. Systema coenzymatis Q-9 adest.

Species typica: *Tsuchiyaea wingfieldii* (van der Walt, Yamada et Ferreira) Yamada, Kawasaki, Itoh, Banno et Nakase.

Genus belongs to Cryptococcaceae. Cells are globose, ovoid to cylindrical, propagating by formation of enteroblastic buds or conidia. Single conidium is formed at top of sterigma and liberated at septum in mid-region of sterigma without projection. Ballistospores are absent. Diazonium blue B test is positive. Xylose is present in cells. Coenzyme Q-9 system is present.

Type species: *Tsuchiyaea wingfieldii* (van der Walt, Yamada et Ferreira) Yamada, Kawasaki, Itoh, Banno et Nakase comb. nov. (Basionym: *Sterigmatomyces wingfieldii* van der Walt, Yamada et Ferreira, Antonie van Leeuwenhoek 53: 138. 1987).

Typus: CBS 7118.

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