Indirect host range test in shade house

A selection of 63 species was chosen (Table 5) and three potted individuals of each species, including *T. fluminensis* of New Zealand origin, were placed together with a population of *T. fluminensis* that had become naturally infected and presented a high percentage of leaves infected with the fungus. The test-plants were organized in rows on the floor of a shade-house and between each row at a 50 cm distance, a row of pots containing diseased *T. fluminensis* was placed (Fig. 14). During the first month, test-plants were examined weekly for disease symptoms, and at monthly intervals following the first month.

The indirect host-range test has demonstrated that *K. brasiliensis* was highly specific to *T. fluminensis*. Healthy *T. fluminensis* from New Zealand-origin plant stock showed “white smut” symptoms one month after they were placed in the vicinity of plants infected with *K. brasiliensis* in the shade house. None of the other test plants belonging to the other 62 taxa became infected by *K. brasiliensis* after 12 months of observation (Fig. 15) .

Table 5. List of test-plants included in the specificity test
BOTANIC FAMILY PLANT SPECIES
Amaranthaceae *Alternanthera philoxeroides* (Mart.) Griseb
Alismataceae *Echinodorus grandiflorus* (Cham. & Schltdl.) Micheli
Sagittaria montevidensis Cham. & Schltdl.
Anacardiaceae *Mangifera indica* L.
Pistacia vera L.
Rhus copallinum L.
Schinus molle L.
Schinus terebinthifolia Raddi
Spondias purpurea L.
Araceae *Pistia stratiotes* L.
Anthurium sp.
Asteraceae *Emeranthus* sp.
Balsaminaceae *Impatiens walleriana* Hook. f.
Bixaceae *Bixa orellana* L.
Bromeliaceae *Aechmea aquilega* (Salisb.) Griseb.
Chrysobalanaceae *Licania tomentosa* (Benth.) Fritsch
Commelinaceae *Callisia repens* (Jacq.) L.
Callisia warszewicziana (Kunth & Bouché) D.R. Hunt
Commelina benghalensis L.
Commelina diffusa Burm. f.
Commelina erecta l.
Dichorisandra thyrsiflora J.C. Mikan
Gibasis schiedeana (Kunth) D.R. Hunt
Siderasis fuscata (Lodd.) H.E. Moore
Tradescantia fluminensis Vell.
Tradescantia pallida (Rose) D.R. Hunt
Tradescantia spathaceae Sw.
Tradescantia zebrina Heynh.
Tradescantia zononia (L.) Sw.
Tripogandra diuretica (Mart.) Handlos.
Tinantia sp.
Costaceae *Costus erythrophyllus* Loes
Cyperaceae *Cyperus rotundus* L.

Euphorbiaceae *Euphorbia heterophylla* L.
Hevea brasiliensis (Willd. ex A. Juss.) Müll. Arg.
Fabaceae *Cassia grandis* L. f.
Faboideae *Dalbergia* sp.
Juncaceae *Juncus* L.
Malvaceae *Theobroma cacao* L.
Maranthaceae *Maranta bicolor* Ker Gawl.
Melastomataceae *Tibouchina herbaceae* (DC.) Cogn.
Miconia calvescens DC.
Meliaceae *Cedrela fissilis* Vell.
Cedrela odorata L.

Myrtaceae *Eugenia uniflora* L.
Plinia edulis (Vell.) Sobral
Plinia trunciflora (O. Berg) Kausel
Psidium cattleianum Sabine
Psidium guava Griseb
Syzygium cumini (L.) Skeels
Pontederiaceae *Eichornia crassipes* Solms
Rosoideae *Rubus fruticosus* L.
Rosaceae *Prunus persica* (L.) Batsch
Rosa sp.
Rubiaceae *Coffea arabica* L.
Rutaceae *Citrus x limon* (L.) Osbeck
Solanaceae *Solanum lycocarpum* A. St.-Hil.
Strelitziaceae *Strelitzia reginae* Aiton
Thyphaceae *Typha domingensis* Pers.
Verbenaceae *Lantana camara* L.
Verbena sp.
Zingiberaceae *Hedychium coronarium* J. König
Zingiber officinale Roscoe

Fig 15. A-C Centrifugal phylogenetic host-range test of *Kordyana brasiliensis.* AGeneral view of experiment in shade house. B- Test-plants growing intermixed with infected *Tradescantia fluminensis.* C- Close-up showing a *T. fluminensis* individual heavily infected with white smut growing among test-plants.

Host-specificity of *Kordyana brasiliensis*: test involving direct basidiospore ejection on species of *Commelinaceae*

In order to confirm the high host-specificity indicated by the results obtained in the indirect host range test for *K. brasiliensis*, as described in the previous report, and also in order to overcome the limitations imposed by the lack of infectivity of fungal strutures of this species produced in culture, a new methodology for host-specificity evaluation was used for a more direct test. This involved gathering *T. fluminensis* leaves naturally colonized by *K. brasiliensis* in the shade house near the lab at Viçosa (Minas Gerais), and attaching them to a sheet of glass coated with vaseline leaving the sporulating abaxial side exposed and placed above test-plants. The sheet of glass was placed 60 cm. above healthy test plants of each species (listed in Tab. 1) in a dew chamber for 48 hours at 22oC +/- 3oC and then transferred to benches in a greenhouse at 25°C ± 2oC (Fig 1). Controls consisted of healthy plants of *T. fluminensis* (biotype from New Zealand) that were either exposed to basidiospore drop together with the other Commelinaceae (positive control) or kept free of inoculation (negative control). Plants were observed weekly for the appearance of symptoms.

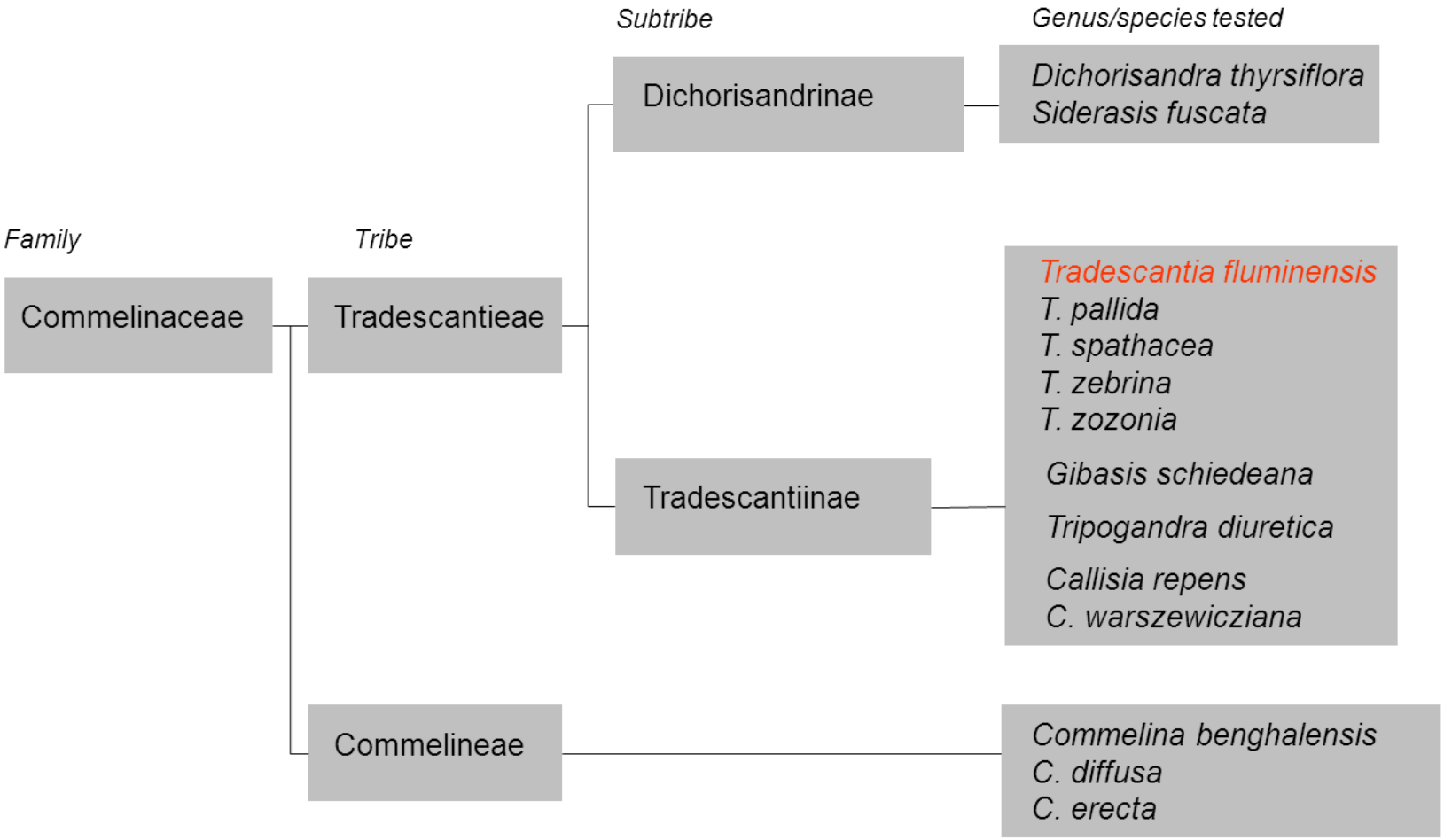
After 18 days of inoculation symptoms appeared on *T. fluminensis* but not in any other species. The situation remained unchanged until the last evaluation, 65 days after inoculation.

Table 1. List of species of Commelinaceae included in the host-specificity test and results of inoculations after 65 days of observation (+ = infected, - = not infected)

PLANT SPECIES	**SYMPTOMS**
Callisia repens (Jacq.) L.	-
Callisia warszewicziana (Kunth & Bouché) D.R. Hunt	-
Commelina benghalensis L.	-
Commelina diffusa Burm. f.	-
Commelina erecta l.	-
Dichorisandra thyrsiflora J.C. Mikan	-
Gibasis schiedeana (Kunth) D.R. Hunt	-
Siderasis fuscata (Lodd.) H.E. Moore	-
Tradescantia fluminensis Vell.	+
Tradescantia pallida (Rose) D.R. Hunt	-
Tradescantia spathaceae Sw.	-
Tradescantia zebrina Heynh.	-
Tradescantia zononia (L.) Sw.	-
*Tripogandra diuretica (*Mart.) Handlos	-

Table 1. Results from the spore-drop host-specificity test. + = infected, - = not infected (after 65 days of observations). There were two replicate plants for each species in each of two runs of the test. All four plants of the target weed, T. fluminensis, became infested with *Kordyana brasiliense*, whilst none of the other Commelinaceae tested showed any symptoms of infection.

Tribe	Subtribe	Species	Test 1		Test 2	
Tradescantieae	Dichorisandrinae	*Dichorisandra thrysiflora*	-	-	-	-
		Siderasis fuscata	-	-	-	-
	Tradescantiinae	*Tradescantia fluminensis*	+	+	+	+
		T. pallida	-	-	-	-
		T. spathacea	-	-	-	-
		T. zebrina	-	-	-	-
		T. zozonia	-	-	-	-
		Gibasis schiedeana	-	-	-	-
		Tripogandra diuretica	-	-	-	-
		Callisia repens	-	-	-	-
		Callisia warszewicziana	-	-	-	-
Commelineae		*Commelina benghalensis*	-	-	-	-
		Commelina diffusa	-	-	-	-
		Commelina erecta	-	-	-	-


Family
Commelinaceae
Tribe
Tradescantieae
Commelineae
Subtribe
Dichorisandrinae
Tradescantiinae
Genus/species tested
Dichorisandra thyrsiflora
Siderasis fuscata
Tradescantia fluminensis
T. pallida
T. spathacea
T. zebrina
T. zozonia
Gibasis schiedeana
Tripogandra diuretica
Callisia repens
C. warszewicziana
Commelina benghalensis
C. diffusa
C. erecta