

# *Pestalotiopsis palmarum* (Cooke) Steyaert: A Leaf-Pathogenic Fungus Associated with Sago Palm (*Metroxylon sagu* Rottb.) in the Philippines

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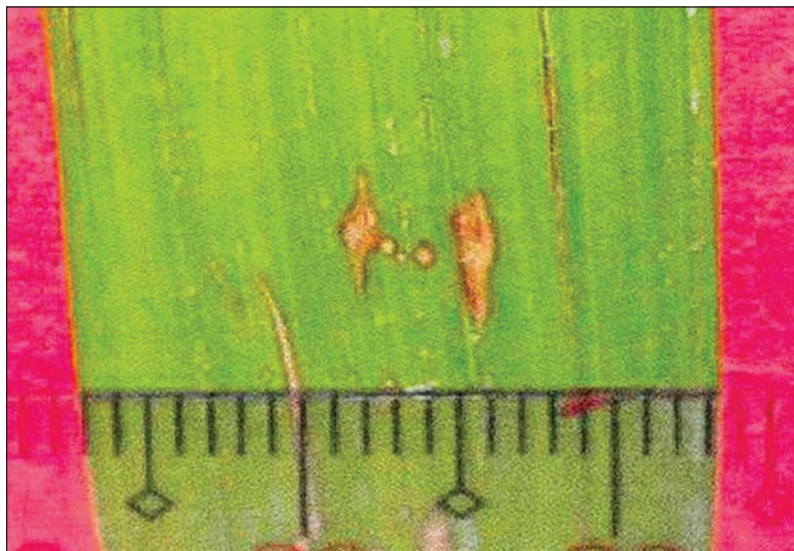
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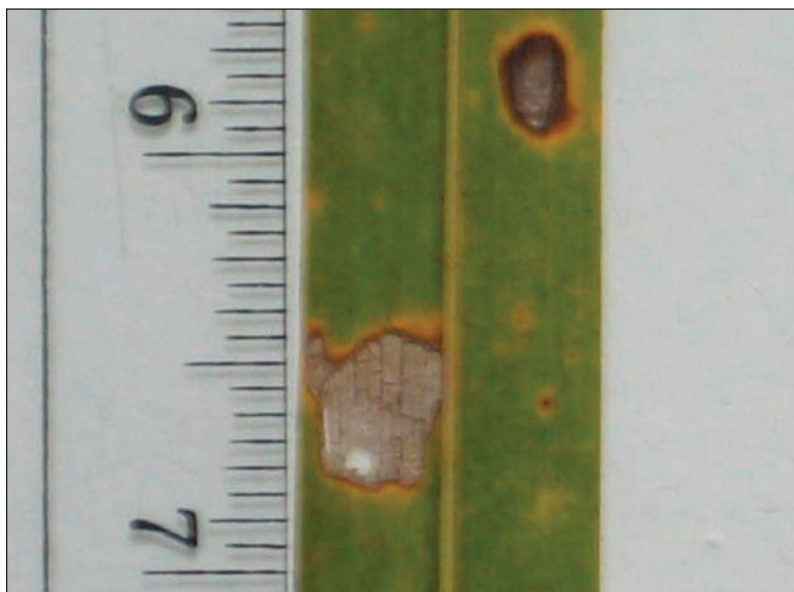
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Key words: leafspot, *Metroxylon sagu*, host range, pathogenic fungus, *Pestalotiopsis palmarum*

The sago palm, one of the Philippine's lesser known and underexploited plants, is unique to the wetlands. The plant's status may explain the report of Flach (1997) that made no mention of pathogenic organisms infecting sago. In several expeditions made to the wetlands of Agusan del Sur since 2002, we took interest on dark brown leaf spots (ranging from small dots to about 1 cm in size), the larger ones bearing light brown to grayish centers, that were occasionally observed on mature leaves of sago (Figure 1a), similar to that may be observed on coconut foliage (Figure 1b). The infections were minor on sago palms in the area and may be noticeable more on mature or senescing foliage. However, as sago can also thrive in dry soil (Josue and Okazaki, 1998), we surmise that a higher degree of leaf spot incidence could occur on the palm, especially on seedlings, if the plant is to be raised in a nursery or grown in an agricultural setting.



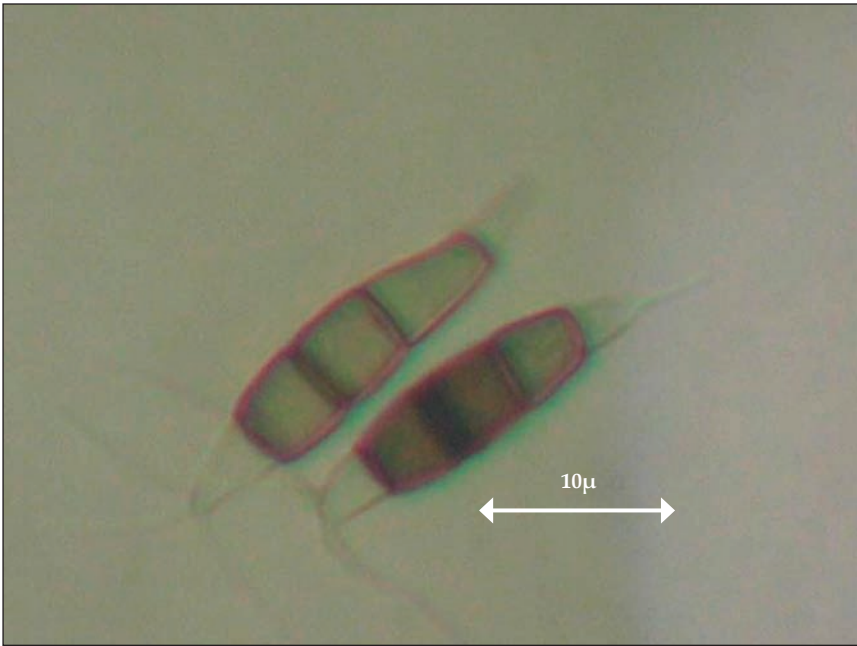
A



B

**Figure 1.** Leaf spots caused by *Pestalotiopsis palmarum* on naturally infected sago (A) and coconut (B)

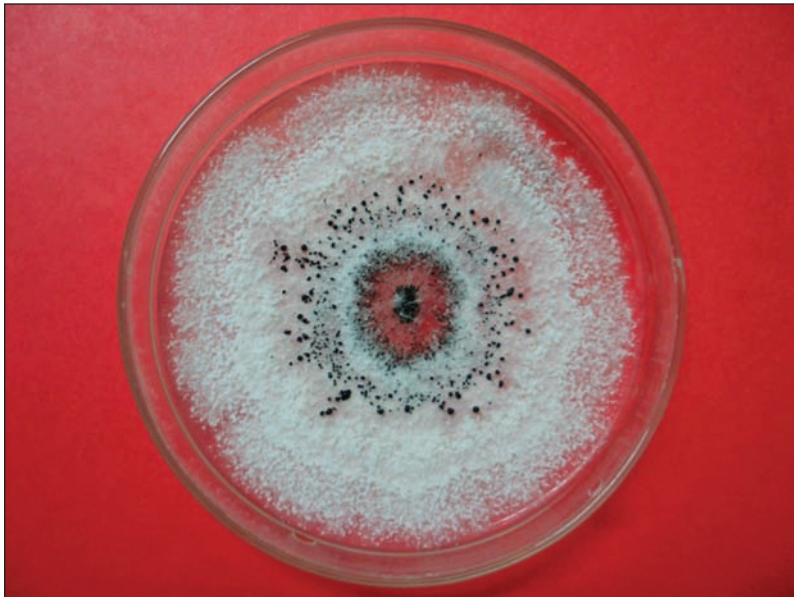
Leaf spot-infected portions were cut and planted onto plates of Potato Dextrose Agar (PDA). The ensuing fungus mycelial growths were transferred to new plated PDA media to obtain pure isolates. One of the isolates was *P. palmarum* (Figure 2), a fungus that infects coconut (Abad, 1983; Abad et al., 1978, del Rosario, 1968; Cortez, 1928) and other palms such as *Areca catechu*, *Borassus flabellifer*, *Chamaerops humulis* and *Elaeis guineensis* and several other hosts like *Hevea brasiliensis*, *Musa spp.*, *Capsicum sp.*, and *Manilkara hexandra* (Mordue and Holiday, 1971).



**Figure 2.** Spores of *Pestalotiopsis palmarum*

Suspensions of the isolate were inoculated using a hand-held trigger sprayer on three test sago seedlings in polyethylene bags (with three non-inoculated seedlings as check), Disease lesions were manifested within one month (Bernal, 2003). Reisolates revealed proof of pathogenicity.

The mycelial growth on PDA was, as Mordue and Holiday (1971) described: white, with aerial mycelium diffused towards the somewhat irregular advancing edge and denser on older parts of the colony (Figure 3); acervuli develop from small yellowish clumps of hyphae and give rise to conspicuous greenish-black spore masses; colonies usually show diurnal zonation in mycelial growth and acervulus formation. Conidia are fusiform, straight, five-celled, with the three median cells that are yellowish brown and the apical and basal cells hyaline; three hyaline apical appendages are present, cylindrical to the obtuse apices; the basal appendages are hyaline and straight (Mordue and Holiday 1971) as shown in Figure 3. From our cultures in vitro, conidia measured  $23.7\mu\text{m}$  long and  $5.4\mu\text{m}$  wide, with the 3 median cells measuring  $14.5\mu\text{m}$  long; the apical appendages measured  $14\mu\text{m}$  while the basal appendages,  $4.6\mu\text{m}$  (Table 1). The measurements fall within the ranges of those described for *P. palmarum* by Mordue and Holiday (1971).



**Figure 3.** Growth of *Pestalotiopsis palmarum* on PDA showing black fruiting bodies around the center of the colony

**Table 1.** Spore size of *Pestalotiopsis palmarum* measured from in vitro culture compared with measurements in Mordue and Holliday (1971)

Measurement ( $\mu\text{m}$ )	Abad, Bernal, and Cuñado's Report		Mordue and Holliday (1971)	
	(n = 20)		Range	Mean
	Range	Mean (SD)		
Spore length	21.2 – 25.6	23.7 ( $\pm 1.2$ )	17 – 25	20
Length of the 3 median cells	12.5 – 16.2	14.5 ( $\pm 1.2$ )	11.5 – 16.5	13
Length of basal appendage	2.5 – 6.2	4.6 ( $\pm 1.1$ )	2 – 6	–
Length of apical appendages	7.5 – 23.8	14.0 ( $\pm 4.6$ )	5 – 25	16
Spore width (at widest section)	4.5 – 6.9	5.4 ( $\pm 0.6$ )	4.5 – 7.5	6

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