

endemic. During a recent collection of *Calamus* from Nilambur forests of Kerala, we could get a species, which on closer examination turned out to be *Calamus metzianus* Schlecht. This species was localized in their natural habitat. *C. metzianus* is so far recorded only from Karnataka. The present paper shows its extended distribution from Karnataka to Kerala. A short description for an easy identification, phenology and habitat is given.

Calamus metzianus Schlecht in Linnaea XXVI: 727. 1853; Hook.f. Fl. Brit. India VI: 462. 1893; Becc. in Rec. Bot. Surv. Ind. II: 217. 1902; Ann. Roy. Bot. Gard. Calc. XI: 82 221. 1908; *C. rudentum* (non Lour) Mart. Hist. Nat. Palm. III: 340. 1823–1853.

Clustering, climbing high into the canopy; stem to 15 m long, with sheath to 2 cm in diameter, without sheath to 1 cm; internodes to 35 cm long. Leaf sheath pale green, densely armed with triangular yellowish spines, the largest to 2 cm long, with numerous much smaller spines in between. Ocrea absent. Knee conspicuous. Flagellum to 2.5 m. Leaf to 1 m, ecirrate, petiole to 5 cm, armed with small yellow spines with black tip, rachis armed with claw like spines, leaflets regular, long acuminate, gradually getting smaller towards the top, the largest to 37 cm × 2 cm; leaf tip armed with short bristles. Inflorescence male and

female superficially similar, to 2 m long with 4–5 partial inflorescences to 22.5 cm long, arising well above the mouth of the sheath, subtending bracts closely sheathing, armed with minute spines; rachillae to 3 cm long, subtending bracts narrow at the base and expanded into a cup above. Fruit ovoid, covered with 17 vertical rows of scales, scales light yellow with brown apex, grooved in the middle (figures 1–3).

Flowering and fruiting — January to May

Specimen examined: Kerala, Malappuram Dist., Nilambur (Thalamkolli) at an altitude of 50 m 27–3–1984. Renuka 3061 (KFRI Herbarium).

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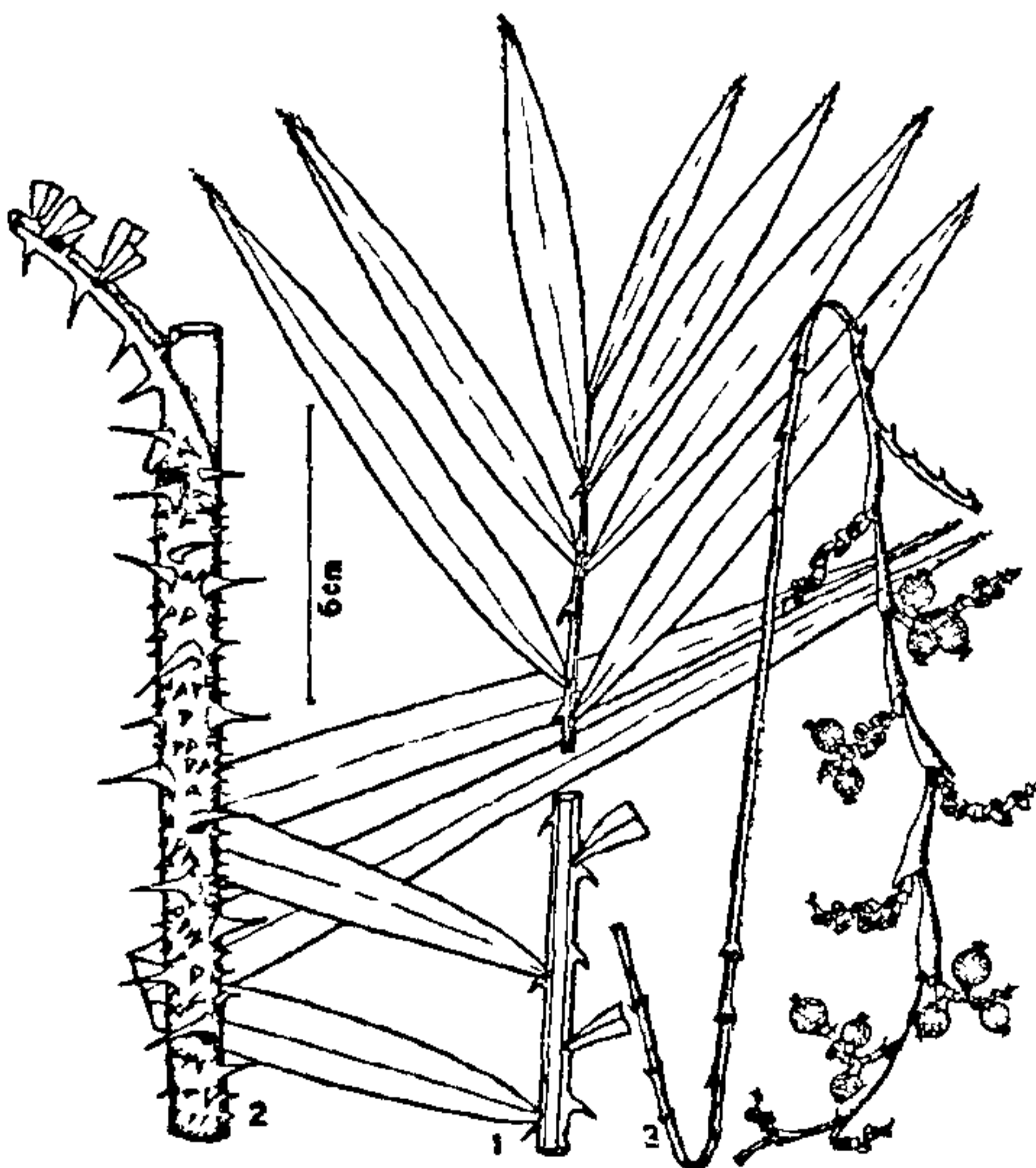
BIOTOXICITY OF *EXCOECARIA AGALLOCHA* L LATEX ON MARINE ORGANISMS

K. KATHIRESAN and
T. SUBRAMONIA THANGAM

Centre of Advanced Study in Marine Biology,
Annamalai University, Parangipettai 608 502, India.

EXCOECARIA AGALLOCHA L (Family—Euphorbiaceae), a mangrove plant, exudes acrid latex which is injurious to the human eyes and hence called 'blinding tree'^{1,2}. Except these reports on the irritating nature of the latex of *E. agallocha* on human eyes and skin, there are no reports concerning its impact on the organisms associated with this plant in the marine environment. It was therefore decided to focus attention on the biocidal properties of the latex of *E. agallocha* on some marine organisms.

Latex was collected from *E. agallocha* occurring in the Pitchavaram mangrove forests (Lat. 11°29'N; Long. 79°47'E) flanked between the water bodies of Vellar and Coleroon Riverine System, centrifuged at 2000 g for 10 min and the supernatant was used to prepare the test solutions. The test organisms numbering 16 (table 1) were collected from the Vellar estuary, acclimatized under laboratory conditions and treated *in vivo* in aquaria having 10⁻⁸, 10⁻⁶, 10⁻⁴ (V/V) latex, prepared in estuarine water



Figures 1–3. 1. Leaf; 2. Leaf sheath; and 3. Part of infructescence.

Table 1 Latex-induced mortality in the test organisms

	Time (hr, min) taken for 100% mortality		
	10^{-4}	10^{-6}	10^{-8}
Fishes:			
<i>Therapon jarbua</i>	0, 09	3, 36	3, 45
<i>Ambassis commersoni</i>	0, 10	0, 15	0, 20
<i>Ambassis gymnocephalus</i>	0, 11	2, 36	2, 58
<i>Siganus javus</i>	0, 15	0, 40	2, 30
<i>Therapon theraps</i>	0, 20	0, 25	0, 30
<i>Arothron immacutus</i>	0, 27	1, 40	2, 20
<i>Macrones gulia</i>	1, 00	3, 00	3, 30
Prawns:			
<i>Penaeus semisulcatus</i>	0, 10	0, 30	1, 57
<i>Penaeus indicus</i>	0, 30	0, 50	2, 00
Crabs:			
<i>Portunus pelagicus</i>	1, 00	7, 00	9, 00
<i>Uca annulipes</i>	14, 00	19, 00	20, 00
<i>Clibanarius clibanarius</i>	18, 20	23, 20	24, 00
Gastropods:			
<i>Cerithidea fluviatilis</i>	12, 00	20, 00	25, 00
<i>Telescopium telescopium</i>	23, 40	30, 00	36, 00
Bivalves:			
<i>Meretrix meretrix</i>	36, 00	*	*
<i>Meretrix casta</i>	40, 00	*	*

*Survived throughout the experiment.

(S 28‰). Ten specimens of each organism were kept in each aquarium tank with 3 litre of test solution. Controls were kept in estuarine water. The morphological changes and the mortality of organisms were noted. The test solutions were changed every 12 hr of treatment. Each experiment was run thrice.

The effect of aqueous solutions of latex on mortality of the test organisms is shown in table 1. Fishes and prawns were most sensitive to latex toxicity and death occurred within few minutes of treatment at 10^{-4} . But crabs and molluscs were rather tolerant to the latex. *Meretrix casta* and *M. meretrix* survived at 10^{-4} concentration for 40 and 36 hr respectively and no mortality of the 2 species of *Meretrix* was observed in the concentrations of 10^{-6} and 10^{-8} . Latex also caused many abnormal changes in the organisms. The puffer fish (*Arothron immacutus*) showed abnormal swells in the abdominal region; Hermit crab (*Clibanarius clibanarius*) released a peculiar mass of air bubbles to the surface of the test solution; and *Telescopium telescopium* secreted out a white mucilaginous fluid.

E. agallocha occurs commonly in the periphery of

many islets of the Pitchavaram mangroves.³ It is, therefore, reasonable to assume that the high wind velocity of coastal region, leading to the breakage of plant parts and eventual mixing of latex in the stagnant water in the central bowl of islets, will pose a potential threat to the faunal resources of the mangroves. Though a massive death of fishes especially puffer fish is being observed in mangrove waters, there is a lack of scientific information on the toxic effect of the latex of *E. agallocha* on the depletion of such fishery resources. Further detailed studies on this and related aspects will yield fruitful results to counteract marine biotoxicity.

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PANGASIU PANGASIU (HAM)—AN ADDITION TO THE LIST OF AIR-BREATHING TELEOSTS

NIRMAL K. THAKUR, B. R. DUTTA and B. B. SATPATHY

Krishi Vigyan Kendra and Trainers' Training Centre, Central Inland Fisheries Research Institute, Kausalyaganga, Bhubaneswar 751 002, India.

PANGASIU PANGASIU (Ham), the only species of the genus in India, is an important component of the catfish fauna of our major river systems and enjoys a fishery of considerable commercial value¹⁻⁴. Its white creamy flesh with fewer intermuscular bones has a special appeal. In recent years, efforts have been directed towards evolving methods of its culture and propagation. Owing to its marked preference for a molluscan diet, *P. pangasius* comes in handy as a useful biological agent for controlling excessive multiplication of molluscs in ponds, thereby checking mollusc-borne diseases⁵.