

WORLD DISTRIBUTION OF ACARINE FAUNA ON THE COCONUT PALM

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The coconut palm *Cocos nucifera* Linn. (Arecaceae) is one of the most widely cultivated perennial oil seed palms of the tropics. The palm is subjected to the ravages of several pests. Lepesme (1947) listed 751 species of insects infesting palms, of which nearly 22 per cent were specific to the coconut palm. Nirula (1955) gave a list of 106 insects and one mite infesting the coconut palm. Menon and Pandalai (1960) in their monograph on coconut palm included 42 spp. of insects affecting the palm and dried nut meat (copra) in storage. The FAO check list enumerated 254 pests (Johnston, 1965). Lever (1969) in the monograph on coconut pests listed 110 pests comprising two species of mites. Nair (1975) described 38 species of insects and four species of mite as pests of the coconut palm. Kurien *et al.* (1979 a & b) listed more than 800 pests including insects and mites infesting the coconut palm. Added to this list is the record of nine species of insects on the coconut palm by Rajan and Mathen (1984, 1985).

Mites on coconut palm are world-wide in distribution. They were recorded from about 31 countries of the world where coconut is cultivated. Kurien *et al.* (1979 a & b) prepared a world list of ten species of mites associated with the coconut palm comprising five species of tetranychid mites coming under two genera, one species of tenuipalpid and four species of

erriophyid mites. Ghai and Wadhi (1983) listed seventeen species of phytophagous mites on the coconut palm including eight species of tetranychid, two species of tenuipalpid and seven species of erriophyid mites. Ohler (1984) in his book on coconut listed two species of erriophyid mites damaging the nuts, as additions to those listed by Lever (1969). Sathiamma (1985, 1986 and 1988) added to this list one species of tenuipalpid and two species of tetranychid mites. Mohanasundaram and Karuppuchamy (1989) gave a review on the coconut mites and listed 20 species of mites including the occurrence of six new species from Tamil Nadu, South India.

Mites recorded from coconut all over the world number 50 with 38 of them identified up to species and 12 undetermined beyond genus. It is not certain whether the other two of them belonging to Tetranychidae are different from already recorded species under the genera *Oligonychus* and *Tetranychus*. The records are mostly from India, the Philippines and Sri Lanka (Table 1). The fauna comprise phytophagous, predacious, parasitic and saprophytic mites. Many vagrant forms also occur on the coconut palm. These mites infest the foliage, inflorescence and nuts of the coconut palm. Because of their minute size, many of these mites go unnoticed. Their occurrence is quite often revealed

only with the damage they do to the crop. Usually these mites appear as occasional pests, but under congenial conditions, sporadic outbreaks can cause substantial loss to the crop. There are a number of beneficial mites associated with coconut inflorescence such as *Neocypholaelaps stridulans* Evans (Sathiamma, 1983). Predacious and parasitic mites co-exist with the phytophagous mites and the insect pests of the coconut palm. Predacious mites, particularly *Amblyseius* spp. are effective biocontrol agents checking the population of the injurious mites and insects. Paracitic mites such as *Pyemotes ventricosus* Newport are efficient biocontrol agents of the coconut caterpillar (Mathen, Sathiamma and Kurien, 1968). Ectoparasitic mites of the family Macrochelidae, Uropodidae and Parasitidae colonise on rhinoceros beetle and red palm weevil, which are the major pests of the coconut palm. Saprophytic mites devour the debris accumulated in the dying and dead plant parts. Oribatid mites feed on fungi and decaying plant materials. There are many more unidentified groups of mites associated with different parts of the coconut palm, the exact role of which is not known.

The present paper is a compilation on the mites recorded on the coconut palm from different parts of the world (Table 1).

Table 1. World Distribution of Acarine Fauna on the Coconut Palm (1924-1994)

Sub-order	Family	Name of species	Habitat	Distribution	Reference
Prostigmata	Tetranychidae	<i>Oligonychus indicus</i> (Hirst)	Foliage	India	Channabasavanna & Banu, 1972
		<i>O. iselemae</i> (Hirst)	"	India	Sathiamma, 1986
		<i>O. modestus</i> (Banks)	"	Thailand	Baker, 1976
		<i>O. plegas</i> Baker & Pritchard	"	India	Mohanasundaram & Karuppuchamy, 1981
		<i>O. pratensis</i> Banks	"	Mauritius	Moutia, 1958
		<i>O. tylius</i> Baker & Pritchard	"	Mauritius	Moutia, 1958
		<i>O. velascoi</i> Rimando	"	India	Shah <i>et al.</i> 1988
		<i>Oligonychus</i> sp.	"	The Philippines	Capuno & Pedro, 1982
		<i>Tetranychus fijiensis</i> (Hirst)	Foliage	Sri Lanka	Kanagaratnam <i>et al.</i> 1981
				India	Mohanasundaram & Karuppuchamy, 1989
				Micronesia	Pritchard & Baker, 1955
				New Guinea	Chazeau, 1983 Schicha & Gutierrez, 1983
				The Philippines	Rimando, 1962
				Seychelles	Gutierrez, 1974
				Sri Lanka	FAO, 1977; Kanagaratnam <i>et al.</i> 1981
		Fiji	Hirst, 1924; Simmonds, 1925		
		India	Sathiamma, 1988		
		"	Mohanasundaram & Karuppuchamy, 1989		
		Mauritius	Moutia, 1958		
		The Philippines	Rimando, 1962		
		Rhodesia & Nyasaland	Goldsmid, 1962		
		Cook Is.	Manson, 1967		
Tenuipalpidae		<i>Tetranychus</i> sp.	"	India	Mohanasundaram & Karuppuchamy, 1981
		<i>Brevipalpus californicus</i> (Banks)	"	India	Nageshachandra & Channabasavanna, 1981
		<i>B. phoenicis</i> (Geijskes)	Nut	India	Baker, 1949
		<i>Dolichotetranychus vanderghooti</i> (Oudemans)	Nut	The Netherlands	Manson, 1967
		<i>Dolichotetranychus</i> sp.	Buttons	Tahiti	Sathiamma, 1985
				India	Mohanasundaram <i>et al.</i> 1989
		<i>Raoiella indica</i> Hirst	Foliage	Sri Lanka	Kanagaratnam <i>et al.</i> 1981
				Egypt	Sayed, 1942
				India	Hirst, 1924
				Mauritius	Moutia, 1958
				Sri Lanka	FAO, 1977; Kanagaratnam <i>et al.</i> 1981
				U.A.R.	Lever, 1969
				Mexico	De Leon, 1957; Baker <i>et al.</i> 1975
				Florida	Keifer, 1944
		Eriophyidae		<i>Tenuipalpus coyacus</i> De Leon	"
<i>Acamina coconuciferae</i> Keifer	Foliage			New Guinea	Hall <i>et al.</i> 1982
<i>Acathrix trymatus</i> Keifer	"			New Hebrids	" "
<i>Colomerus novaehabridensis</i> (Keifer)	Nut			The Philippines	Keifer, 1977; Hall <i>et al.</i> 1982
				Sri Lanka	Hall <i>et al.</i> 1982
<i>Dialox stellatus</i> Keifer	Foliage			The Philippines	Keifer, 1962b; Briones & Sill, 1963
<i>Eriophyes guerreronis</i> (Keifer)	Flower, Nut, shoot			Benin	Mariau, 1969
				Brazil	Arruda & Aquino, 1969; Doreste, 1969; Mariau, 1969
				Cameroun	Mariau, 1977
				Costa Rica	Scheliesske, 1990
				Cuba	Estrada & Gonzalea, 1975
				Dahomey	Keifer, 1963
				Ivory Coast	Mariau, 1977
				Jamaica	Hall <i>et al.</i> 1982
				Mexico	Keifer, 1965; Ortega <i>et al.</i> 1965
		Nigeria	Mariau, 1977		
		San Thome & Principe	Cabral & Carmona, 1968; Mariau, 1977		
		Tonga	Mariau, 1977		
		Venezuela	Doreste, 1968; Keifer, 1963		

Sub-order	Family	Name of species	Habitat	Distribution	Reference
		<i>Nacerimina gutierrzi</i> Keifer	Foliage	Samoa	Keifer, 1979
		<i>Notostrix attenuata</i> Keifer	"	India	Mohanasundaram, 1984
		<i>N. jamaicae</i> Keifer	Nut	The Philippines	Keifer, 1963
			Foliage	West Indies	Keifer, 1972
		<i>Retracrus elaeis</i>	"	Costa Rica	Schlieske, 1990
		<i>Scolocentrus spiniferus</i> Keifer	"	"	" "
			"	The Philippines	Briones & Still, 1963; Johnston, 1965; Keifer, 1962b
	Tarsonemidae	<i>Steneotarsonemus furcatus</i> De Leon	"	Malaysia	FAO, 1981; Kang, 1981
		<i>Xenaster longia dominalis</i> Mohanasundaram	Button	Mexico India	Otero-Colina, 1986 Mohanasundaram, 1994
	Cunaxidae	<i>Cunaxa setirostris</i> (Hermann)	"	"	Sathiamma, 1991
	Stigmaeidae	<i>Agistenus</i> sp.	"	"	" "
	Tydeidae	<i>Tydeus</i> sp.	"	"	" "
	Eupodidae	<i>Eupodes</i> sp.	"	"	" "
Meso-stigmata	Ameroseiidae	<i>Amenoseius</i> sp. <i>Neocypholaclaps ampullula</i> (Berlese) <i>N. Stridulans</i> (Evans)	Flower " "	India Sri Lanka India	Nair, 1975 Perera, 1981 Nair & Rao, 1965; Sathiamma, 1983
	Phytoseiidae	<i>Amblyseius alstoniae</i> Gupta <i>Amblyseius (Typhlodromalus) eucalypticus</i> Gupta <i>A. largoensis</i> <i>A. (Amblyseius) nuciferae</i> <i>A. (A.) paraaerialis</i> Muma	Foliage " " " "	" " " " "	Gupta & Gupta, 1978 Sathiamma, 1991 Schicha & Gutierrez, 1985 Gupta, 1985 Sathiamma, 1991
	Ascidae	<i>Lasioseius</i> sp.	"	"	"
Astig-mata	Acaridae	<i>Tyrophagus longior</i> <i>T. putrescentiae</i> (Schrank) <i>Lorryia</i> sp. <i>Paralorryia</i> sp. <i>Tyrophagus</i> sp.	Rotting Coconut Foliage Foliage	India India Mexico India	Mohanasundaram & Parnameswaran, 1991 Prasad, 1974 Otero-Colina, 1986 Sathiamma, 1991
Crypto-Galumnidae stigmata		<i>Notogalunna nortoni</i> Ramani & Haq <i>N. praetiosa</i> Sellnick <i>Caloppia arboreus</i> Corpus-Raros <i>Brassiella</i> sp. <i>Scapheremaeus arboreus</i> Corpus-Raros	Foliage " " " "	India " " " "	Ramani & Haq. 1990 " " " "
	Oribatidae	<i>Uracrobates indicus</i> Ramani & Haq	"	"	Ramani & Haq. 1990.

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