

Proposed by P. Vijarnsorn, 1974
Revision by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

MAI KHAO SERIES

Field Symbol: Mik

Distribution: Occupies a small extent in Peninsular Thailand.

Setting: Mai Khao soils are formed from beach deposits on old beach ridges or dune sand along sea shore. Relief is nearly level to gently undulating with slopes ranging from 1 to 5 percent. Elevation ranges from 3 to 10 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am') or Tropical Rain Forest (Koppen 'Af'). Average annual precipitation is above 2,000 mm. Mean annual air temperature is from 26 °C to 28 °C.

Drainage, Permeability and Surface Runoff: Drainage is somewhat excessively to excessively drained, permeability is estimated to be rapid and surface runoff is slow to medium. Ground water level falls below 1.5 m throughout the year.

Vegetation and Land Use: Mainly used for settlement and coconut growing. Where abandoned reverts to low secondary shrubs and grasses.

Characteristic Profile Features: The Mai Khao series is a member of the isohyperthermic, coated Typic Quartzipsamments (soil taxonomy, 2003). They are very deep sandy soils and are characterized by a very dark grayish brown or brown sandy surface or A horizon overlying a reddish brown grading to yellowish red sandy C horizon. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0 throughout the profile.

Typifying Pedon: Mai Khao sand, coconut plantation, from Ban Suan Maphrao, Tambon Mai Khao, Amphoe Thalang, Changwat Phuket, 5 m above mean sea level, 2 to 3 percent slopes, (sheet name Amphoe Thalang, sheet number 4635 II).

Profile Code Number: S-63/33, described by Somsak Luangsirorat, 5 December 1974 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
A	0-16	Very dark grayish brown (10YR3/2) sand; single grains; loose, nonsticky and nonplastic; plentiful very fine and fine roots; strongly acid (field pH 5.5); clear smooth boundary.
AC	16-24	Dark yellowish brown (10YR3/4) sand; single grains; loose, nonsticky and nonplastic; plentiful very fine and medium roots; strongly acid (field pH 5.5); clear smooth boundary.
C1	24-56	Brown to reddish brown (5-7.5YR4/4) sand; single grains; loose, nonsticky and nonplastic; few very fine and medium roots; very strongly acid (field pH 5.0); clear smooth boundary.
C2	56-120	Yellowish red (5YR4/6) sand; single grains; loose, nonsticky, nonplastic; few very fine and medium roots; very strongly acid (field pH 5.0).

Type Location:

Name of subdistrict, Tambon Mai Khao, Amphoe Thalang, Changwat Phuket.

Range of Profile Features:

The surface or A horizon is 10 to 15 cm in thickness and has 10YR or 7.5YR hues, values 3 or 4 and chromas 1 or 2. Texture of sandy loam may occur. Structure is weak fine subangular blocky or loose (single grain). Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

The C horizon has 5YR hues, values 4 or 5 and chromas 3 or 4 and gradual grading to chromas 6 or 8 of the same hues and values. The 2.5YR hues, values 4 or 5 and chromas 6

or 8 may be found in the lower C horizon. There is no observable aggregation as called single grain. Very strongly acid, reaction values range from 4.5 to 5.0.

Similar Soil Series:

Bacho series (Bc): isohyperthermic, coated Typic Quartzipsamments, has higher hues (10YR or 7.5YR) in subsoil.

Rayong series (Ry): isohyperthermic, uncoated Typic Quartzipsamments, has much lighter color in subsoil.

Principal Associated Soils:

These may include Bacho series on the same beach ridge.

ANALYSIS RESULTS

Profile code No.: S-63/33

(oven dry basis)

Soil series: Mai Khao series (Mik)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO ₃ %	P, mg kg ⁻¹ Bray 2	K, mg kg ⁻¹ NH ₄ OAc	
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1				
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ	water	KCl				
Pf-195	0-16	A	95.5	0.5	4.0							s	s	4.9	4.2		5.5	15
Pf-196	16-24	AC	94.0	2.0	4.0							s	s	4.9	4.2		2.6	9
Pf-197	24-56	C1	96.5	0.0	3.5							s	s	5.5	4.4		3.0	9
Pf-198	56-120	C2	95.0	1.5	3.5							s	s	5.3	4.4		6.9	9

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)									Base satur ⁿ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D)	Electrical conduct ^y (ECx10 ⁶) dS m ⁻¹
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH ₄ OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)			
0-16	2.9	0.65	0.04	0.60	0.30	0.05	0.20	1.15	3.80	4.95	2.9	72.5	40	23			0.11
16-24	0.3	0.38	0.02	0.40	0.10	0.03	0.20	0.73	2.20	2.93	1.8	45.0	41	25			0.01
24-56	2.3	0.29	0.01	0.90	0.20	0.03	0.20	1.33	3.70	5.03	1.8	51.4	74	26			0.03
56-120	0.6	0.72	0.04	0.30	0.10	0.02	0.20	0.62	6.60	7.22	3.0	85.7	21	9			0.01

Surveyor: S. Luangsirotat

Reported by: W. Sirichuaychoo

Date: Dec. 5, 1974

Date: Oct. 26, 1998