

Proposed by P. Vijarnsorn, 1977  
Revised by :  
P. Vijarnsorn, 1988  
W. Sirichuaychoo, 2004

## CHIAN YAI SERIES

Field Symbol: **Cyi**

**Distribution:** Occupies a small extent in Peninsular Thailand.

**Setting:** Chian Yai soils are formed from marine clay deposit on formal tidal flat or maginal of peat swamp (coastal plain). Elevation ranges from 1 to 5 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am') or Tropical Savannah (Koppen 'Aw'). Average annual precipitation is from 1,500 to 3,000 mm. Average annual air temperature is from 26 °C to 28°C.

**Drainage, Permeability and Surface Runoff:** Drainage is very poorly drained, permeability is slow and surface runoff is slow.

**Vegetation and Land Use:** Most of areas are low shrubs of *Melaleuca leucodendron*.

**Characteristic Profile Features:** The Chian Yai series is a member of the fine, mixed, superactive, acid, isohyperthermic Haplic Sulfaquents (Soil Taxonomy, 2003). They are very deep soils and are characterized by a thin organic layer and brown to dark brown peaty sandy loam surface or A horizon over gray, light brownish gray clay which has  $n$ -values < 0.7 overlying dark greenish gray clay (marine clay) which high sulphur content (sulfidic materials) within 50 cm from the soil surface and  $n$ -values  $\geq$  0.7. Very strongly acid, reaction values range from 4.5 to 5.0 over slightly acid to neutral, reaction values range from 6.5 to 7.0.

**Typifying Pedon:** Chian Yai clay - *Melaleuca leucadendron*, from the west of cross road Ban Bor Lor about 8.5 km, Tambon Suan Loung, Amphoe Chian Yai, Changwat Nakhon Si Thammarat, 3 m above mean sea level, 10 to 50 cm flooding depth (sheet name Amphoe Chian Yai, sheet number 5025 III, coordinate 145424).

**Profile Code Number:** S-62/135. described by D. Wisatesin, 26 July 1977 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
Oi	0-6/11	Black (10YR2/1) peaty sandy loam; weak fine granular structure; friable, slightly sticky and slightly plastic; many fine and medium roots; organic soil materials composed mainly of roots, barks and small twigs which easily to crush with one's fingers; very strongly acid (field pH 4.5); clear wavy boundary.
Ag	6/11-41	Brown (7.5YR5/2) clay; massive; sticky and plastic; common fine and few medium roots; few muck; $n$ -values less than 0.7; very strongly acid (field pH 4.5).
Cg1	41-60	Light brownish gray (10YR6/2) clay; massive; sticky and plastic; few fine and medium roots; common peat; $n$ -values more than 0.7; very strongly acid (field pH 4.5).
Cg2	60-100	Light gray to gray (10YR6/1) clay; massive; sticky and plastic; few fine roots; common peat; $n$ -values more than 0.7; neutral (field pH 7.0).
2Cg3	100-140	Dark greenish gray (5GY4/1) and dark brown (7.5YR3/2) clay; massive; sticky and plastic; peat and muck layer; $n$ -values more than 0.7; neutral (field pH 7.0).

### Type Location:

Name of district, Amphoe Chian Yai, Changwat Nakhon Si Thammarat.

### Range of Profile Features:

The surface or A horizon clay loam, or clay ranges from 10 to 20 cm in thickness and has 10YR hues, values 2 to 5 and chromas 1 to 2. Structure in weak subangular blocky. Very strongly acid, reaction values range from 4.5 to 5.0.

The C horizon massive of half ripe clay with sulfidic materials has 10YR or GY hues, values 6 to 7 and chromas 1 to 2. Strongly acid to neutral, reaction values range from 5.5 to 7.0 (rapidly drop when dry within 50 cm).

### Similar Soil Series:

Ra-ngae series (Ra): fine, mixed, superactive, acid, isohyperthermic Sulfic Endoaquepts, clay with sulfidic materials C horizon occurred between 50 to 100 cm from the soil surface.

Takua Thung series (Tkt): fine-silty, mixed, superactive, acid, isohyperthermic Typic Sulfaquepts, younger with sulfidic materials soils within 50 cm from the soil surface and fine silty family.

### Principal Associated Soils:

These included Ra-ngae, Takua Thung and Kab Daeng series.

Kab Daeng series: loamy, mixed, superactive, dysic, isohyperthermic Terric Sulfihemists, organic material 40 to 100 cm thickness from the soil surface.

#### ANALYSIS RESULTS

(oven dry basis)

Profile code No.: S-62/135

Soil series: Chian Yai series (Cyi)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO <sub>3</sub> %	P, mg kg <sup>-1</sup> Bray 2	K, mg kg <sup>-1</sup> NH <sub>4</sub> OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>	water	KCl			
DN-9499	0-6/11	Oi	54.0	39.0	7.0						sl	peat Sl	4.1	3.8		45.0	129
DN-9500	6/11-41	Ag	2.4	47.0	50.6						sic	c	4.2	3.8		19.0	72
DN-9501	41-60	Cg1	8.5	46.6	44.9						sic	ur.c	3.1	2.9		2.7	108
DN-9502	60-100	Cg2	27.1	18.5	54.4						c	ur.c	2.3	2.0		2.3	32
DN-9503	100-140	2Cg3	1.5	18.9	79.6						c	ur.c	3.0	1.9		1.6	39

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol <sub>(+)</sub> kg <sup>-1</sup> )										Base satur <sup>n</sup> (%)		ECEC cmol <sub>(+)</sub> kg <sup>-1</sup> (B+D)	Al KCl extr. cmol <sub>(+)</sub> kg <sup>-1</sup> (ECx10 <sup>6</sup> ) (D)	Electrical conduct <sup>y</sup> dS m <sup>-1</sup> (ECx10 <sup>6</sup> )
								SUM	Extr.	SUM	CEC	CEC	B/Cx100	(Bx100)				
				Ca	Mg	K	Na	cations (B)	acidity (A)	(B+A)	NH <sub>4</sub> OAc (C)	100g Clay		(B+A)				
0-6/11	8.7	26.66		5.10	2.20	0.30	1.40	9.00	58.90	67.90	56.9	812.9	16	13			0.21	
6/11-41	2.8	9.62		7.00	3.60	0.20	0.80	11.60	26.30	37.90	24.0	47.4	48	31			1.20	
41-60	4.6	7.01		11.70	6.20	0.30	0.80	19.00	39.40	58.40	34.1	75.9	56	33			1.93	
60-100	6.9	6.45		11.70	9.60	0.06	0.40	21.76	80.00	101.76	29.4	54.0	74	21			6.62	
100-140	8.4	21.76		26.20	14.30	0.10	0.70	41.30	97.20	138.50	53.4	67.1	77	30			3.04	

Surveyor: D. Wisatesin

Date: July 26, 1997

Reported by: W. Sirichuaychoo

Date: Nov. 24, 1998