

Proposed S.Charoenpong, 1973
 Revised by :
 P. Vijarnsorn and staffs, 1988
 W. Sirichuaychoo, 2004

YAN TA KHAO SERIES

Field Symbol: Yk

Distribution: Occupies a small extent in Peninsular Thailand.

Setting: Yan Ta Khao soils are formed from alluvium and occurred on alluvial plain (terrace). The relief is nearly level to gently undulating with slopes less than 5 percent. Elevation ranges from 20 to 40 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. Average annual air temperature is from 26 °C to 28°C.

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

Vegetation and Land Use: Mostly scrub forest and grass land. Some parts were cleared and planted para rubber and oil palm.

Characteristic Profile Features: The Yan Ta Khao series is a member of the loamy-skeletal, mixed, semiactive, isohyperthermic Typic (Aeric) Plinthaquults (soil taxonomy, 2003). They are shallow soils to ironstones and saturated with water in all layer shallow than 75 cm from the soil surface and has a layer unsaturated with water within 200 cm from the soil surface (Episaturation). These soils are characterized by a dark grayish brown or brown sandy loam surface or A horizon overlying a brownish very gravelly loam or clay loam argillic B horizon, occur within 50 cm from the soil surface. These underlain by a light gray or gray clay loam or clay accompany with plinthite that forms a continuous phase or more than 50 percent of the soil matrix. Mottles of yellowish, brownish and reddish occur throughout subsoil and most distinct in a light gray or gray clay loam or clay horizon (BC or C horizon). Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5 throughout the profile.

Typifying Pedon: Yan Ta Khao clay loam - scrub forest, Ban Mai Pionary, Amphoe Muang, Changwat Satun, 2 to 3 percent slopes (sheet number 5022 IV SW).

Profile Code Number: S-67/9, described by P. Pramojane, 4 April 1973 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
A	0-11	Dark brown (10YR3/3) loam; common rusty; weak fine and medium subangular blocky structure; friable, slightly sticky and nonplastic; many fine roots; very strongly acid (field pH 5.0); clear smooth boundary.
Btg	11-26	Light yellowish brown (10YR6/2) and yellowish brown (10YR5/6) clay loam; common fine distinct yellowish red (5YR5/8) mottles; massive to weak medium and coarse angular blocky structure; extremely hard, slightly sticky and plastic; common patchy thin cutan in pores; many fine and few large roots; very strongly acid (field pH 4.5); clear wavy boundary.
Btc	26-45	Yellowish brown (10YR5/6) and brownish yellow (10YR6/8) gravelly clay; many fine prominent red (10R4/8) mottles; moderate medium and coarse angular blocky structure; extremely hard, sticky and plastic; moderately thick cutan on ped faces; few fine roots; very strongly acid (field pH 4.5); clear wavy boundary.
Btcg1	45-86	Gray (10YR6/1) and light gray (10YR7/1) gravelly clay; many medium prominent red (10R4/8) mottles; moderate medium and coarse angular blocky structure; hard, sticky and plastic; moderately thick cutan in pores; no roots; very strongly acid (field pH 4.5); clear wavy boundary.
Btcg2	86-100	Gray (10YR6/1) and light gray (10YR7/1) gravelly clay; many medium prominent red (10R4/8) mottles; moderate medium and coarse angular blocky

structure; extremely firm, sticky and plastic; moderately thick cutan in pores; no roots; very strongly acid (field pH 4.5).

Type Location:

Name of district, Amphoe Yan Ta Khao, Changwat Trang.

Range of Profile Features:

The surface or A horizon sandy loam, is 10 to 15 cm in thickness and has 10YR hues, values 4 or 5 and chromas 2 or 3. Texture of loam may occur. Structure is weak fine and medium subangular blocky. Very strongly acid to strongly acid, reaction values range from 5.0 to 5.5.

The upper argillic B horizon sandy loam, has 10YR or 7.5YR hues, values 5 or 6 and chromas 6 or 8. Mottles of grayish color may also occur. Structure is weak medium subangular blocky or structureless. Very strongly acid, reaction values range from 4.5 to 5.0.

The lower argillic B very gravelly clay loam or sandy clay loam, has 10YR hue, values 6 to 7 and chromas less than 2. Mottles of brownish and yellowish colors. Structure is weak medium and coarse subangular blocky. Very strongly acid, reaction values range from 4.5 to 5.0.

The B or BC horizon clay loam or clay, has 10YR hue, values 6 to 7 and chromas less than 2. Mottles of brownish and yellowish colors and red colors of plinthite. Plinthite occur more than 50 percent of the soil matrix if not occur as a continuous phase within 150 cm from the soil surface. Structure is weak medium and coarse subangular blocky or massive. Very strongly acid, reaction values range from 4.5 to 5.0.

Similar Soil Series:

Phayom Ngam series (Pym): fine-loamy, kaolinitic, isohyperthermic Kandic Plinthaquults, derived from shale or phyllite.

Na Tham series (Ntm): fine-loamy, mixed, semiactive, isohyperthermic Typic (Aquic) Plinthudults, deeper ironstone layer and moderately well drained.

Principal Associated Soils:

These include Na Tham, Pak Khom soils.

Pak Khom series (Pkm): fine-loamy, mixed, semiactive, isohyperthermic Typic (Aquic) Plinthudults.

ANALYSIS RESULTS

Profile code No.: S-67/9

(oven dry basis)

Soil series: Yan Ta Khao series (Yk)

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 water	1:1 KCl				
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ					
Pd-673	0-11	A	32.5	63.5	4.0						sil	l	5.2	4.1	0.3	2.2	73
Pd-674	11-26	Btg	31.0	57.0	12.0						sil	cl	4.9	3.9	0.3	1.7	35
Pd-675	26-45	Btc	11.0	63.0	26.0						sil	gc	4.9	4.0	0.6	1.6	29
Pd-676	45-86	Btcg1	34.0	33.0	33.0						cl	gc	5.3	3.8	0.6	2.0	59
Pd-677	86-100	Btcg2	31.0	37.0	32.0						cl	gc	5.2	3.6	0.6	1.4	47

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)				
				0-11	0.6	1.67		1.30	0.60	0.10	0.10	2.10	6.10	8.20	4.30			
11-26	0.3	0.77		0.70	0.20	0.10	0.10	1.10	5.10	6.20	3.60	30.0	31	18			0.02	
26-45	0.6	0.31		1.70	0.40	0.10	0.10	2.30	7.00	9.30	5.60	21.5	41	25			0.01	
45-86	1.4	0.16		1.90	0.40	0.10	0.10	2.50	13.00	15.50	13.10	39.7	19	16			0.02	
86-100	2.1	0.14		2.70	0.50	0.10	0.10	3.40	12.30	15.70	13.00	40.6	26	22			0.02	

Surveyor: P. Pramojanee

Reported by: W. Sirichuaychoo

Date: April 4, 1973

Date: Nov. 8, 1998