

Proposed by S. Charoenphong, 1971  
Revised by:  
P. Vijarnsorn and staffs, 1988  
W. Sirichuaychoo, 2004

## YALA SERIES

Field Symbol: Ya

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

**Setting:** Yala soils derived from alluvium and occurred on dissected uplift terrace. Relief is undulating to rolling. Slope ranges from 5 to 20 percent, but may be less than 8 percent locally. Elevation ranges from 20 to 80 m above sea level. The climate is Tropical Rain Forest (Koppen 'Af') or Tropical Monsoon (Koppen 'Am'). Average annual air temperature is from 26°C to 28°C. Average annual precipitation is from 1,800 to 3,000 mm.

**Drainage, Permeability and Surface Runoff:** Drainage is well drained, permeability is estimated to be rapid over moderate and surface runoff is rapid.

**Vegetation and Land Use:** Originally, occupied with Tropical Evergreen Forest, but parts have been cleared for para rubber and oil palm growing.

**Characteristic Profile Features:** Yala series is a member of the clayey-skeletal, kaolinitic, isohyperthermic Typic Kandiodults (soil taxonomy, 2003). They are very shallow soils to very gravelly and cobbly soils. Gravels and cobbles occur within 50 cm of the soil surface and mainly composed of rounded and subrounded sandstone, quartzite, phyllite and shale. They are characterized by a very dark grayish brown to brown sandy loam surface or A horizon overlying a strong brown grading to a yellowish red gravelly or cobbly sandy loam or sandy clay loam upper kandic B horizon over a yellowish red or red gravelly or cobbly sandy clay or clay lower kandic B horizon. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

**Typifying Pedon:** Yala sandy loam, from secondary shrub area near mining pit at Tambon Ban Chalong, Amphoe Hat Yai, Changwat Songkhla, 20 m above mean sea level, 3 percent slopes (sheet name Amphoe Hat Yai, sheet number 5032 II, coordinate: 651775).

**Profile Code Number:** S-68/33, described by C. Pintip, 24 March 1971 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
A	0-12	Dark brown to brown (7.5YR4/4) sandy loam; weak fine and medium subangular blocky structure; friable, nonsticky and nonplastic; many coarse and medium interstitial pores; plentiful fine and medium roots; strongly acid (field pH 5.5); clear smooth boundary.
Bc	12-25	Brown (7.5YR5/4) gravelly and cobbly sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and nonplastic; many medium and coarse interstitial pores; plentiful fine and medium roots; strongly acid (field pH 5.5); clear smooth boundary.
Btc1	25-42	Yellowish red (5YR5/6) very gravelly and cobbly sandy clay loam; weak fine to medium subangular blocky structure; friable, slightly sticky and nonplastic; patchy thin cutan along vertical ped faces; many coarse interstitial pores; plentiful medium and few fine roots; strongly acid (field pH 5.5); clear smooth boundary.
Btc2	42-100 <sup>+</sup>	Red (2.5YR5/8) very gravelly and cobbly clay; moderate fine to medium subangular blocky structure; friable, sticky and slightly plastic; patchy thin cutan along vertical ped faces; many coarse interstitial pores; few fine roots; strongly acid (field pH 5.5).

Remark: Gravels and cobbles mainly composed of rounded sandstone and quartzite resulted from being transported, more than 35% by volume within 50 cm from the soil surface.

**Type Location:**

Name of province, Changwat Yala.

**Range of Profile Features:**

The surface or A horizon sandy loam or loam is from 10 to 15 cm in thickness and has 7.5 YR or 10YR hues, values 3 or 4 and chromas 2 to 4. Structure is weak fine and medium subangular blocky. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

The upper kandic B horizon very gravelly or cobbly sandy loam or sandy clay loam texture and has 7.5YR hues, values 5 or 6 and chromas 6 or 8 which gradually grading to 5YR hues, values 4 or 5 and chromas 6 or 8.

The lower kandic B very gravelly or cobbly sandy clay or clay and has 5YR or 2.5YR hues, values 4 or 6 and chromas 6 or 8. The average of clay content in the control section of this kandic B horizon ranges from 35 to 60 percent.

The structure of the kandic B horizon is hard to describe due to the high volume percent of gravels and cobbles which composed mainly of rounded and subrounded sandstone, quartzite, phyllite and shale. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

**Similar Soil Series:**

Mae Rim series (Mr): loamy-skeletal, mixed, isohyperthermic Typic (Kandic) Paleustults, has browner color in subsoil, lower clay content and formed under ustic moisture soil regime.

**Principal Associated Soils:**

These include Phato and Ranong series on hilly terrain.

Phato series (Pto): loamy-skeletal, mixed, semiactive isohyperthermic Typic Hapludults.

Ranong series (Rg): loamy-skeletal, mixed, semiactive, acid, isohyperthermic Lithic Udorthents.

**ANALYSIS RESULTS**

(oven dry basis)

Profile code No.: S-68/33

Soil series: Yala series (Ya)

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 water	1:1 KCl			
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>					
Pb-964	0-12	A	67.5	18.5	14.0						sl	sl	5.1	4.2		14.4	187
Pb-965	12-25	Bc	66.0	15.5	18.5						sl	gsl	4.8	3.9		3.0	53
Pb-966	25-42	Btc1	59.5	18.5	22.0						scl	vg scl	5.2	4.1		3.4	169
Pb-967	42-100+	Btc2	39.0	17.0	44.0						c	vgc	5.0	4.0		3.4	64

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> ) (D)	Electrical conductivity (ECx10 <sup>6</sup> ) (ECx10 <sup>6</sup> ) dS m <sup>-1</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)				
0-12	0.6	1.93		0.40	0.20	0.40	0.40	1.40	7.00	8.40	5.7	40.7	25	17			0.22	
12-25	0.7	1.69		0.30	0.10	0.10	0.20	0.70	5.70	6.40	5.6	30.3	13	11			0.02	
25-42	0.8	0.78		0.30	0.10	0.40	0.20	1.00	6.60	7.60	5.6	25.5	18	13			0.03	
42-100+	1.2	0.41		0.10	0.10	0.10	0.10	0.40	7.50	7.90	5.8	13.2	7	5			0.01	

Surveyor: C. Pintip

Date: March 24, 1971

Reported by: W. Sirichuyachoo

Date: Nov. 5, 1998