

Proposed by P. Vijarnsorn, 1975  
Revised by :  
P. Vijarnsorn and staffs, 1988  
W. Sirichuaychoo, 2004

## PAK KHOM SERIES

Field Symbol: Pkm

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

**Setting:** Pak Khom soils are formed from alluvium on alluvial plain. Relief is undulating to gently rolling. Slope ranges from 2 to 8 percent. Elevation ranges from 20 to 50 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am'). Average annual precipitation is from 1,800 to 3,000 mm Mean annual air temperature is from 26 °C to 28°C.

**Drainage. Permeability and Surface Runoff:** Drainage is somewhat poorly drained, permeability is slow and surface runoff is medium. Ground water level deeper than 1.5 m in dry season.

**Vegetation and Land Used:** Secondary forest cleared for para rubber and oil palms plantation.

**Characteristic Profile Features:** Pak Khom series is a member of the fine-loamy, mixed, semiactive, isohyperthermic Typic (Aquic) Plinthudults (soil taxonomy, 2003). They are very deep soils and are characterized by very dark brown or brown sandy loam surface or A horizon overlying a strong brown or yellowish brown sandy clay loam of the upper argillic B horizon. The lower argillic B horizon is gray or light gray clay loam or clay with many red mottles (plinthite) that formed a continuous phase or more than half of the matrix and strong brown mottles. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

**Typifying Pedon:** Pak Khom sandy loam - shrubs, from 1.5 km of left side road of the east of Ban Pak Meng, Tambon Mai Fad, Amphoe Si Kao, Changwat Trang, 10 m above mean sea level, 2 to 4 percent slopes, less than 1 meter ground water depth (sheet name Amphoe Sikao, sheet number 4833 I).

**Profile Code Number:** S-65/121, described by C. Pintip and staffs, 1 May 1975 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
Ap	0-11	Dark brown to brown (10YR4/3) sandy loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; few fine interstitial pores; few fine roots; moderately acid (field pH 6.0); clear smooth boundary.
BA	11-20	Yellowish brown (10YR5/4) sandy clay loam; common medium distinct strong brown (7.5YR5/8) mottles; moderate fine and medium subangular blocky structure; firm, sticky and slightly plastic; few fine and medium interstitial pores; few fine and medium roots; some krotovina activities; strongly acid (field pH 5.5); clear smooth boundary.
Bt	20-40	Yellowish brown (10YR5/4) clay loam; moderate to strong medium and coarse subangular blocky structure; very firm, sticky slightly plastic; many moderately thick cutan on ped faces; few fine and medium interstitial pores; few fine roots; some krotovina activities; strongly acid (field pH 5.5); clear smooth boundary.
Btg	40-70	Light gray (10YR7/2) and strong brown (7.5YR5/8) clay loam; few fine prominent red (2.5YR4/8) mottles; strong fine and medium subangular blocky structure; very firm, sticky and plastic; many moderately thick cutan on ped faces; few fine interstitial pores; few fine roots; some krotovina activities; very strongly acid (field pH 5.0); gradual smooth boundary.
Btgv1	70-130	Light gray (10YR7/1-2) clay; many coarse prominent red (10YR4/8, plinthite) mottles; strong fine and medium subangular blocky structure; very firm, sticky and plastic; many moderately thick cutan on ped faces; few fine interstitial pores; few fine roots; very strongly acid (field pH 4.5).
Btgv2	130-150	Light gray (10YR7/1) clay; many coarse prominent red (10YR4/8, plinthite) mottles; very strongly acid (field pH 4.5). sampling by auger.

Remark: Plinthite more than 50% by volume of the soil matrix or continuous phase.

**Type Location:**

Name of subdistrict, Tambon Pak Khom, Amphoe Huai Yot, Changwat Trang.

**Range of Profile Features:**

The surface or A horizon sandy loam, ranges from 10 to 20 cm in thickness, which 10YR or 7.5YR in hues, values 3 to 4 and chroma 2 to 4. Soil texture is loam may occur. Very strongly acid to moderately acid, reaction values range from 4.5 to 6.0.

The upper argillic B horizon sandy clay loam or clay loam with sand has 10YR or 7.5YR hues, values 5 to 6 and chroma 4 to 8. The lower argillic B horizon has occurred between 50 to 100 cm from the soil surface which 10YR or 7.5 in hues, values 6 to 7 and chromas 1 to 2, many red mottles (plinthite) formed a continuous phase or more than half of the matrix and strong brown mottles. Soil texture is clay loam or clay may occurred in deeper subsoil. Very strongly acid to moderately acid, reaction values range from 4.5 to 6.0.

**Similar Soil Series:**

Tha Sae series (Te): fine-loamy, kaolinitic, isohyperthermic Typic Kandiodults, no mottled clay (plinthite).

Sawi series (Sw): loamy-skeletal, mixed, semiactive, isohyperthermic Typic Paleodults.

Khao Khat series (Kkt): clayey-skeletal, kaolinitic, isohyperthermic Typic (Kandic) Plinthodults.

**Principal Associated Soils:**

The Pak Khom series is associated with Tha Sae, Sawi and Khao Khat series. Pak Khom occurred on the lower position of Tha Sae and Sawi.

**ANALYSIS RESULTS**

(oven dry basis)

Profile code No.: S-65/121

Soil series: PaK Khom series (Pkm)

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>				
Pf-585	0-11	A	51.5	45.5	3.0					sl	sl	5.8	5.0		1.2	29
Pf-586	11-20	BA	56.9	32.1	11.0					sl	scl	6.0	5.0		1.2	29
Pf-587	20-40	Bt	39.5	32.0	28.5					cl	cl	5.5	4.0		1.6	24
Pf-588	40-70	Btg	20.4	49.6	30.0					cl	cl	5.0	4.0		1.7	35
Pf-589	70-130	Btgv1	26.2	32.8	41.0					c	c	5.4	4.2		1.7	29

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 conduct <sup>y</sup> (ECx10 <sup>6</sup> ) dS m <sup>-1</sup>	
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH <sub>4</sub> OAc (C)	CEC 100g Clay	B/Cx100				(Bx100)/(B+A)
0-11	0.9	1.79	0.05	4.40	0.40	0.10	0.20	5.10	3.00	8.10	5.9	196.7	86	63		0.22	
11-20	2.2	1.53	0.05	3.90	0.40	0.10	0.20	4.60	3.60	8.20	5.4	49.1	85	56		0.12	
20-40	2.8	0.78	0.03	1.00	0.40	0.10	0.20	1.70	12.80	14.50	9.7	34.0	18	12		0.05	
40-70	3.7	0.71	0.03	0.40	0.40	0.10	0.20	1.10	21.50	22.60	13.8	46.0	8	5		0.04	
70-130	3.5	0.65	0.02	0.30	0.30	0.10	0.20	0.90	18.50	19.40	13.8	33.7	7	5		0.04	

Surveyor: C. Pintip & staff

Reported by: W. Sirichuaychoo

Date: May 1, 1975

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