

Proposed by P. Hemsrichart , 1969
Revised by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

SU-NGAI KOLOK SERIES

Field Symbol: Gk

Distribution: Occupies a small extent in Peninsular Thailand, almost exclusively in Changwat Narathiwat.

Setting: Su-ngai Kolok soils are formed from alluvium and occurred on the undulating of granitic terrains and slightly depressed areas of valley flats. Relief is nearly level. Slope ranges from 1 to 2 percent. The climate is Tropical Monsoon (Koppen 'Am'). Mean 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 poorly drained, permeability is estimated to be slow and surface runoff is slow. Surface flooding by impounded rainwater up to 30 cm for 3 to 5 months during the rainy season. The groundwater level seldom falls below 1 meter in dry season.

Vegetation and Land Use: Used almost exclusively for transplanted rice. Abandoned areas revert to reed vegetation.

Characteristic Profile Features: Su-ngai Kolok series is a member of the fine, kaolinitic, isohyperthermic Typic Endoaquults. They are very deep soils and are characterized by a dark gray or gray coarse sandy clay loam surface or A horizon overlying a greenish gray or bluish gray coarse sandy clay argillic B horizon. Yellowish brown mottles occur throughout the profile and yellowish red mottles occur at the top of the illuvial B horizon. The lower argillic B or cambic B horizon coarse sandy clay loam or coarse sandy loam, percent clay decreased more than 20 from the maximum within 150 cm from the soil surface. Reaction is very strongly acid to moderately acid, reaction values range from 4.5 to 6.0 over moderately acid to slightly acid, reaction values range from 6.0 to 6.5.

Typifying Pedon: Su-ngai Kolok sandy clay loam - transplanted rice, from Amphoe Ra-ngae, Changwat Narathiwat, less than 2 percent slopes.

Profile Code Number: S-71/14, described by F. J. Dent, 17 April 1969 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
Apg 0-8/9	Light brownish gray (10YR6/2) sandy loam; many fine distinct yellowish brown (10YR5/8) mottles; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and very fine discontinuous, random, simple open tubular and interstitial pores; many fibrous roots; very strongly acid (field pH 4.5); clear wavy boundary.
Btg1 8/9-24/25	Greenish gray (5BG6/1) sandy clay; many medium distinct yellowish red (5YR5/6) mottles; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; broken thin clay coating along horizon and vertical ped faces; common fine tubular and interstitial pores; common fibrous roots; very strongly acid (field pH 4.5); gradual wavy boundary.
Btg2 24/25-56	Greenish gray (5BG6/1) sandy clay; common fine faint yellowish brown (10YR5/6) mottles; weak fine and medium subangular blocky structure; slightly hard, firm, sticky and plastic; patchy thin clay coating along horizon and vertical ped faces; common fine and very fine tubular pores and very fine interstitial pores; few fibrous roots; slightly acid (field pH 6.5); gradual smooth boundary.
BCg 56 ⁺	Greenish gray (5BG6/1) sandy clay loam; few fine faint yellowish brown (10YR5/6) mottles; weak fine and medium subangular blocky structure; slightly firm, sticky and plastic; few fibrous roots; slightly acid (field pH 6.5).

Type Location:

Name of district, Amphoe Su-ngai Kolok, Changwat Narathiwat.

Range of Profile Features:

The surface or A horizon coarse sandy loam or coarse sandy clay loam ranges from 5 to 20 cm in thickness and has 10YR hues, values of 4 to 6, and chromas 1 or 2. Structure is moderate medium blocky. Very strongly acid to moderately acid, reaction ranges from 4.5 to 6.

The argillic B horizon coarse sandy clay (may have clay loam texture with an average of clay content in the control section above 35 percent), 10YR or 5BG, values 6 and chromas 1. Structure is weak and moderate medium blocky. moderately acid to slightly acid, reaction values range from 6.0 to 6.5, when tested by colorimetric methods in the field. However, air dried reaction 1:1 H₂O was below 5.5 (strongly acid).

The lower argillic B or cambic B horizon within 150 cm from the soil surface, percent clay decrease more than 20 from the maximum.

Similar Soil series:

Tha Sala series (Tsl): fine, kaolinitic, isohyperthermic Typic Endoaquults, no sand composition.

Principal Associated soils:

These include Phangnga, Song Khla and Khok Khain series.

Phangnga series (Pga): fine, kaolinitic, isohyperthermic Typic Kandiodults, well drained soil.

Song Khla series (Sng): fine-loamy, siliceous, subactive, isohyperthermic Aquic Paleudults, higher position and not lighter texture.

Khok Khain series (Ko): fine-loamy, kaolinitic, isohyperthermic Typic Kandiaquults, not lighter texture.

ANALYSIS RESULTS
(oven dry basis)

Profile code No.: S-71/14

Soil series: Su-ngai Kolok series (Gk)

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				
P-851	0-8/9	Apg	41.2	41.3	17.5							l	sl	5.0	4.0	0.2	10.0	102
P-852	8/9-24/25	Btg1	32.8	15.7	51.5							c	sc	4.2	3.8	0.0	8.2	31
P-853	24/25-56	Btg2	41.5	14.5	44.0							c	sc	5.0	4.0	0.2	17.2	13
P-854	56+	BCg	39.0	27.5	33.5							cl	scl	4.9	3.8	0.3	25.3	31

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
								SUM	Extr.	SUM	CEC	CEC	B/Cx100	(Bx100)/				
				Ca	Mg	K	Na	cations (B)	acidity (A)	(B+A)	NH ₄ OAc (C)	100g Clay	(B+A)					
0-8/9	5.7	1.94		0.90	0.30	0.10	0.30	1.60	11.60	13.20	11.6	66.3	14	12			0.07	
8/9-24/25	1.7	1.42		0.70	0.40	0.03	0.20	1.33	10.30	11.63	9.8	19.0	14	11			0.09	
24/25-56	0.4	0.48		0.70	0.30	<0.02	0.20	1.20	4.90	6.10	6.6	15.0	18	20			0.01	
56+	0.7	0.43		0.70	0.40	0.03	0.30	1.43	5.70	7.13	6.5	19.4	22	20			0.01	

Surveyor: F.J. Dent

Date: April 17, 1969

Reported by: W. Sirichuaychoo

Date: Dec. 5, 1998