

Proposed by P. Vijarnsorn, 1969  
Revised by :  
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## BACHO SERIES

Field Symbol: Bc

**Distribution:** Occupies moderate extent along coastal zone in Peninsular Thailand and some areas in Southeast Coast of Thailand.

**Setting:** Bacho soils are formed from beach sand on old beach ridge or dune sand. They occurred on nearly level to gently undulating relief of old beach ridges and dune sand. Slope ranges from 1 to 5 percent. The climate is Tropical Monsoon (Koppen 'Am'). Average annual air temperature is from 26 °C to 28°C. Average annual precipitation is from 1,500 to 3,000 mm.

**Drainage, Permeability and Surface Runoff:** Drainage is somewhat excessively drained, permeability is estimated to be rapid and surface runoff is slow. The ground water level is below 2 m during the dry season.

**Vegetation and Land Use:** Mainly used for settlement and coconut plantation. When abandoned reverts to low scrub with many bare patches.

**Characteristic Profile Features:** Bacho series is a member of the isohyperthermic, coated Typic Quartzipsamments. They are very deep sandy soils and are characterized by a dark brown or yellowish brown loamy sand surface or A horizon overlying a brownish yellow loamy sand or sand C horizon. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

**Typifying Pedon:** Bacho loamy sand – coconut plantation, Amphoe Muang, Changwat Narathiwat, 2 to 5 m above mean sea level, 2 to 3 percent slopes.

**Profile code no.:** S-71/1, described by S. Charoenpong, 10 December 1968 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
A 0-20	Dark brown (10YR3/3) loamy sand; weak fine subangular structure breaking to single grain; very friable, nonsticky and nonplastic; many fine interstitial pores; many fine roots; moderately acid (field pH 6.0); clear smooth boundary.
AC 20-29	Yellowish brown (10YR5/4) loamy sand; weak fine subangular blocky structure breaking to single grain; very friable, nonsticky and nonplastic; common fine interstitial and few fine tubular pores; common fine roots; slightly acid (field pH 6.5); gradual smooth boundary.
C1 29-57	Brownish yellow (10YR6/6) loamy sand; weak fine subangular blocky structure breaking to single grain; very friable, nonsticky and nonplastic; many fine interstitial pores; few fine roots; slightly acid (field pH 6.5); gradual smooth boundary.
C2 57-106	Brownish yellow (10YR6/8) loamy sand; weak fine subangular blocky structure breaking to single grain; very friable, nonsticky and nonplastic; many fine interstitial and tubular pores; few fine roots; slightly acid (field pH 6.5); gradual smooth boundary.
C3 106 <sup>+</sup>	Reddish yellow (7.5YR6/8) loamy sand; weak fine subangular blocky structure breaking to single grain; very friable, nonsticky and nonplastic; many fine interstitial pores; few medium roots; moderately acid (field pH 6.0).

### Type Location:

Name of district, Amphoe Bacho, Changwat Narathiwat.

### Range of Profile Features:

The surface or A horizon sand or loamy sand ranges from 10 to 20 cm in thickness and has colors 10YR hues, values 2 to 4 and chromas 2 or 3. Very strongly acid to slightly acid, reaction values range from 5.0 to 6.5.

The C horizon loamy sand or sand has colors 10YR hues, values 5 to 8 and chromas 6 to 8. Structure of the profile is weak blocky breaking to single grain or single grain. Very strongly acid to slightly acid, reaction values range from 5.0 to 6.5.

### Similar Soil Series:

Hua Hin series (Hh): isohyperthermic, coated Typic Quartzipsamments, formed on younger beach ridges or dune sand, contains shell fragments throughout profile.

Ban Thon series (Bh): sandy, siliceous, superactive, isohyperthermic, ortstein Typic Haplorthods, has a spodic horizon within 200 cm from the soil surface.

Rayong series (Ry): isohyperthermic, uncoated Typic Quartzipsamments, strongly leached quartz sands, white or grayish color.

Phattaya series (Py): isohyperthermic, coated Typic Quartzipsamments, has coarser sand fraction and browner color.

Mai Khao series (Mik): isohyperthermic, coated Typic Quartzipsamments, red colors.

### Principal Associated Soils:

These include Hua Hin, Rayong and Ban Thon series.

### ANALYSIS RESULTS

(oven dry basis)

Profile code No.: S-71/1

Soil series: Bacho series (Bc)

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>					
P-89	0-20	A	87.5	6.1	6.4						ls	ls	4.7	4.2	0.1	7	31
P-90	20-29	AC	85.7	6.6	7.7						ls	ls	5.0	4.4	0.4	6	10
P-91	29-57	C1	84.8	6.6	8.6						ls	ls	5.4	4.6	0.2	8	10
P-92	57-106	C2	85.7	5.8	8.5						ls	ls	5.0	4.4	0.5	9	7
P-93	106+	C3	86.4	5.3	8.3						ls	ls	5.2	4.2	0.2	6	10

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 (B+D) cmol <sub>(+)</sub> kg <sup>-1</sup>	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)				
0-20	0.7	0.69		0.75	0.42	<0.02	0.25	1.44	5.10	6.54	2.9	45.3	50	22			0.01	
20-29	0.5	0.48		0.32	0.53	<0.02	0.20	1.07	4.19	5.26	2.2	28.6	49	20			0.01	
29-57	0.7	0.34		0.42	0.53	<0.02	0.23	1.20	3.90	5.10	2.9	33.7	41	24			0.01	
57-106	0.6	0.12		0.32	0.21	<0.02	0.27	0.82	2.80	3.62	2.2	25.9	37	23			0.01	
106+	0.5	0.11		0.32	0.32	<0.02	0.13	0.79	1.80	2.59	1.8	21.7	44	31			0.01	

Surveyor: S. Charoenpong

Reported by: W. Sirichuaychoo

Date: Dec. 10, 1968

Date: Oct. 25, 1998