

Two Local Names and Their Morphological Difference
within *Mangifera caloneura*, a Wild Mango in Northeast Thailand

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Introduction

Wild *Mangifera* species have their origin in the areas of Myanmar to Vietnam and the Malay Peninsula (Mukherjee, 1953). Mainland Southeast Asia is a center of their diversity. Twenty species of *Mangifera* have been found in Thailand (Eiadthong *et al.*, 1999), growing not only in natural habitats but also in agricultural fields. There is a dominant species of wild mango in Northeast Thailand. That is *M. caloneura*. Most of *M. caloneura* trees were generically called as *muang paa* (wild mango in Thai), while some trees were specifically called as *muang kalon* (Ueda *et al.*, 2011). Local people mentioned about the difference between *muang kalon* and *muang paa* as follows: "they produce different fruit" (Buriram, female), "*muang kalon* has thin leaf and delicious fruit, while *muang paa* has hard leaf and resinous fruit" (Mahasarakham, female), "*muang kalon* is cultivated mango" (Kalasin, male), and so on. The objective of this study is to compare the morphological characteristics, especially quantitative traits of fruit between *muang paa* and *muang kalon*.

Materials and Methods

Six *muang kalon* trees (in five sites) and seven *muang paa* trees (in seven sites) in Northeast Thailand were studied (Fig. 1). These trees had been explored and the morphology of tree shape, bark, and leaf were observed in the previous study (Ueda *et al.*, 2011). Flowers were observed for identification in January 2011. Four to five fruits on the ground per tree were collected (except for one *muang kalon* tree) in April 2011, to be estimated weight (g), length (mm), width (mm), thickness (mm) of fruit and seed, and sugar content (° Brix) and acid content (%) of fruit juice.

Results and Discussion

(1) Tree shape, bark color, and leaf shape and texture were morphologically different between *muang kalon* and *muang paa* (Fig. 2). Notably, *muang kalon* had similar traits to *M. indica* on tree shape (Fig. 2-F) and leaf morphology (Fig. 2-H).

(2) *Muang kalon* were, however, identified as *M. caloneura* due to the five fertile stamens by floral observation (Fig. 2-I). (*M. indica* has single fertile stamen.)

(3) Fruit weight, fruit length, fruit width/length ratio, fruit thickness/weight ratio, sugar content, seed length, seed width/length ratio and seed thickness/weight ratio were significantly different (Table 1), indicating that *muang kalon* had bigger and sweeter fruit that were shaped obovoid and rather flat (Fig. 2-J), while *muang paa* had roundish fruit (Fig. 2-E). *Muang kalon* fruit also tended to have less acid content. Seed weight was not significantly different, leading *muang kalon* to have more pulp/fruit weight ratio.

The morphology of *muang kalon* was distinguishable from that of *muang paa*, and seemed to be intermediate between *muang paa* and common mango. The distinct better traits of *muang kalon* among *M. caloneura* are already recognized and told apart by two names by local people, indicating the beginning of domestication. Their distribution was not geographically separated. Genetic relationship between them is going to be studied.

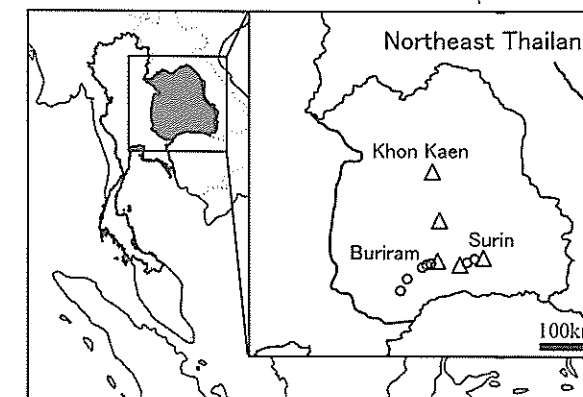


Fig. 1. Locations of the observed *M. caloneura* trees in Northeast Thailand. (O: *muang paa*, Δ: *muang kalon*.)

Table 1. Comparison of quantitative traits of fruit, pulp, and seed between *muang paa* and *muang kalon*.

	Type of <i>M. caloneura</i>		Significance ^z
	<i>Muang paa</i>	<i>Muang kalon</i>	
Fruit weight (g)	38.6	52.8	*
Fruit length (mm)	43.4	53.5	**
Fruit width/length	0.87	0.77	**
Fruit thickness/weight	1.14	0.77	**
Sugar content (° Brix)	15.2	19.3	**
Acid content (%)	1.51	1.04	0.058
Seed weight (g)	10.8	12.2	0.32
Seed length (mm)	35.2	45.0	**
Seed width/length	0.75	0.64	**
Seed thickness/weight	2.1	1.62	*
Pulp/fruit weight	0.71	0.77	**

Muang paa: n=31, *muang kalon*: n=24.

^zValue shows probability. Asterisks show significantly different probability at 0.01 < P < 0.05 (*) or P < 0.01 (**).

References

- Eiadthong, W., K. Yonemori, A. Sugiura, N. Utsunomiya, and S. Subhadrabandhu 1999. *Jpn. J. Trop. Agr.* 43: 76-83.
Mukherjee, S. K. 1953. *J. Linn. Soc. Bot.* 55: 65-83.
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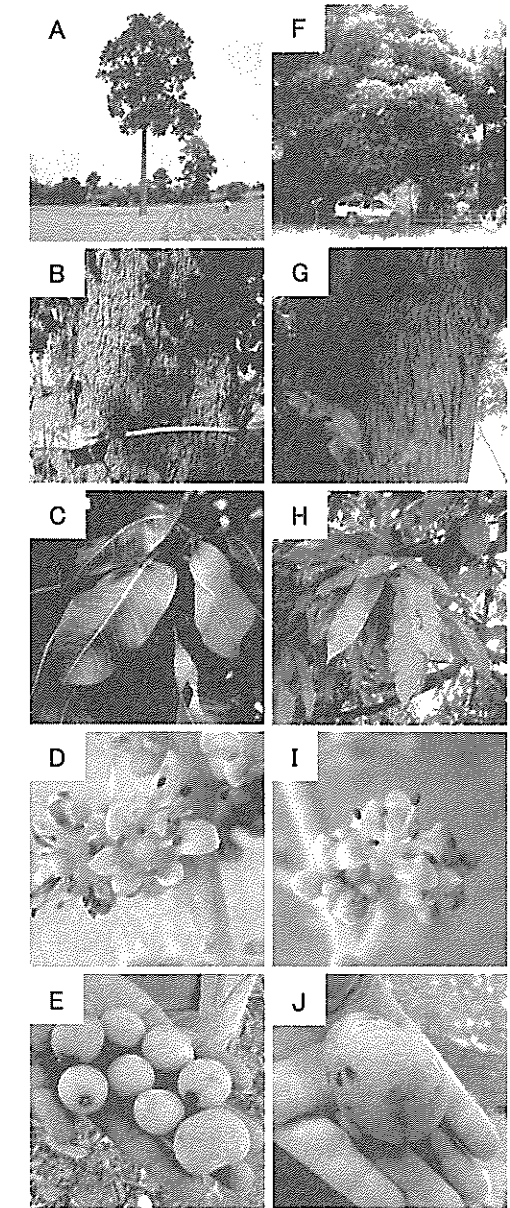


Fig 2. Comparison of morphology between *muang paa* (A-E) and *muang kalon* (F-J). *Muang paa* had crown of not-dense and cylindrical, or dense and long globose (A), bark of black to grey to brown (B), leaves of thick, stiffy, wide, and oblong to elliptic with blunt apex (C), flowers with five stamens (D), and small roundish fruit (E), while *muang kalon* had dense, dome-shaped crown that similar to *M. indica*'s (F), pale-brown bark (G), leaves of lanceolate with pointed apex that similar to *M. indica*'s (H), flowers with five stamens (I), and rather big obovoid fruit (J).

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