forests

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Supplementary Material

Root respiration-trait relationships are influenced by leaf habit in tropical plants

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Supplementary Figure and Tables

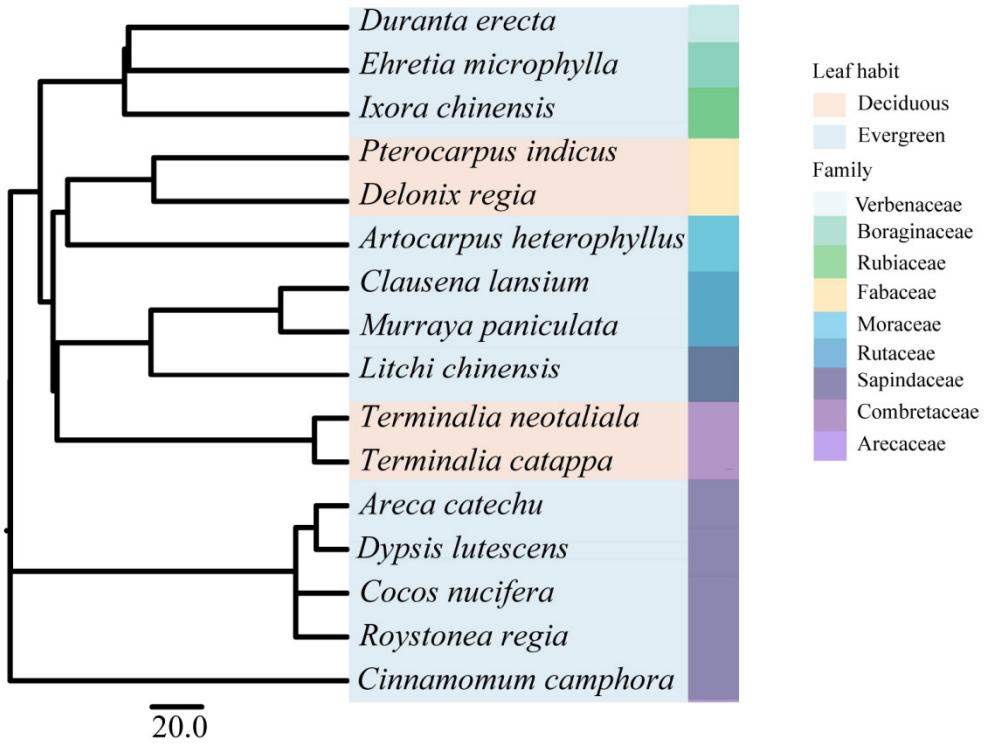

Figure S1. Phylogeny trees mapped onto each of the 16 species in this study.

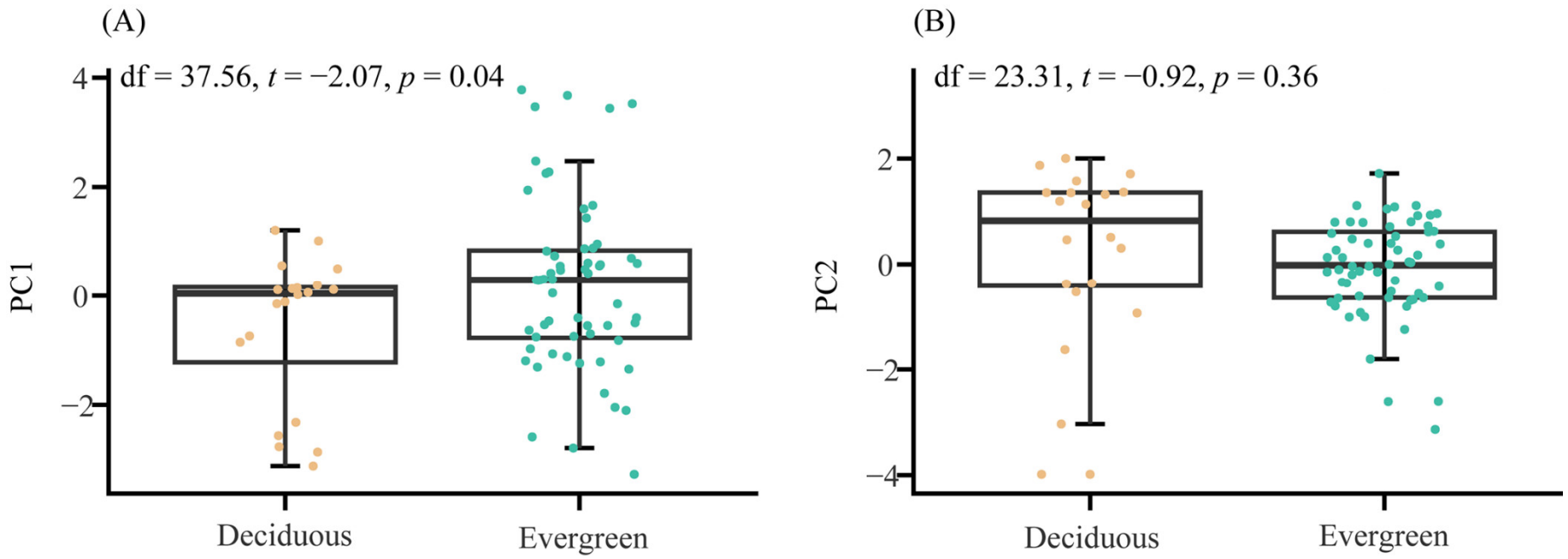

Figure S2. Results of independent- samples t- test for elucidating the differences between deciduous and evergreen species along PC1 and PC2. Box-plots illustrate the inter-quartile range (25%–75%).

Table S1. The test of the phylogenetic signal of the root traits, including Blomberg's K and Pagel's λ.

	Blomberg's K test		**Pagel's λ**	
Root traits	**K**	**p**	**λ**	**p**
SRL ($m\ g^{-1}$)	**0.35**	**0.56**	**0.02**	**0.94**
RD (mm)	**0.57**	**0. 12**	**0.44**	**0.17**
RTD ($g\ cm^{-3}$)	**0.28**	**0.77**	**0.00**	**1**
RCC ($mg\ g^{-1}$)	**0.62**	**0.08**	**0.61**	**0.38**
RNC ($mg\ g^{-1}$)	**0.52**	**0.23**	**0.3**	**0.43**
C/N	**0.55**	**0.16**	**0.35**	**0.35**
RR (nmol $CO_2\ g^{-1}\ s^{-1}$)	**0.33**	**0.58**	**0.00**	**1**

SRL, specific root length; RD, root diameter; RTD, root tissue density; RCC, root carbon concentration; RNC, root nitrogen concentration; C/N, root carbon-to-nitrogen ratio; RR, root respiration rate.

Table S2. Results of the PCA on root morphological traits (*e.g.*, SRL, RD, and RTD), chemical traits, and respiration rate for the 16 study species and deciduous with evergreen.

	All species		Deciduous		Evergreen	
Traits	PC1	PC2	PC1	PC2	PC1	PC2
RR (nmol $CO_2\ g^{-1}\ s^{-1}$)	−0.46	−0.36	−0.20	−0.57	−0.44	−0.36
RNC ($mg\ g^{-1}$)	−0.27	−0.22	−0.52	−0.05	−0.41	0.41
RD (mm)	0.50	−0.44	−0.50	0.31	0.47	−0.21
RTD ($g\ cm^{-3}$)	0.26	0.57	0.30	0.47	0.27	0.54
RCC ($mg\ g^{-1}$)	0.19	−0.53	−0.46	−0.18	0.19	−0.59
SRL ($m\ g^{-1}$)	−0.59	0.09	0.37	−0.56	−0.55	0.13
Proportion Var (%)	40.8	22.3	50.5	29.2	48.2	20.2
Cumulative Var (%)	40.8	63.1	50.5	79.7	48.2	68.4

The table depicts loading scores on each axis and shows the proportion of variation explained. RR, root respiration rate; RNC, root nitrogen concentration; RD, root diameter; RTD, root tissue density; RCC, root carbon concentration; SRL, specific root length. PC represented the axis of the PCA.

Table S3. The relationships between root respiration and the co-variation in root traits (PC1 and PC2).

	ALL		Deciduous		Evergreen	
Traits	PC1	PC2	PC1	PC2	PC1	PC2
RR	−0.48 ***	0.34 **	−0.21	−0.54 *	−0.58 ***	−0.27 *

RR, root respiration rate; PC represented the axis of the PCA. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.