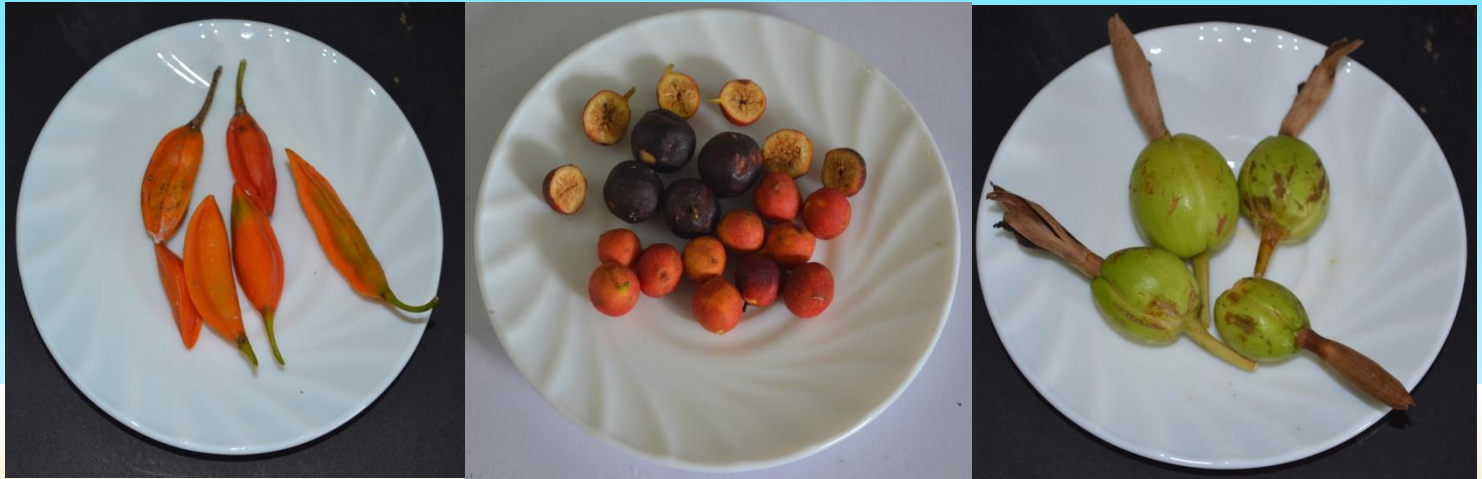


Native Fruit Species in the Philippines and Their Phenotypic Traits and Potential Uses



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Introduction

- **The Philippines has 3,600 identified native trees, 67% of which are endemic or found only in our archipelago.**
- **In terms of fruit-bearing species, there are 2,500 tropical fruits worldwide and of this, more than 300 edible perennial species have been reported.**
- **However, only five are considered major including banana, pineapple, mango, papaya and citrus.**

Introduction

- **About another 20 more species are economically important.**
- **The other native fruit species are considered neglected and underutilized, but they have great potential both for local and foreign markets.**
- **Native fruits are rich sources of phytochemicals, antioxidants, nutraceuticals and other compounds for the promotion of beauty, health and wellness.**

Introduction

- They are also known as “functional foods” because of the pharmacologically active phytochemicals and antioxidants they contain.
- Furthermore, native fruits have physiological benefits that can protect people from sickness or reduce the risk of developing chronic diseases.

Objectives

- **Document the different native fruit species in the country and;**
- **Characterize and evaluate their fruit qualities and find out their potential uses.**

Methodology

- **Native fruit species were identified and documented in the RC FC Farm of the late Dr. RE. Coronel in Mabacan, Calauan, Laguna and those that were collected in the wild in Marinduque, Phil. Including those from other parts of the country.**
- **20-30 fruit ripe fruit samples from each tree were collected randomly and taken to the laboratory for evaluation of fruit characters.**

Methodology

- Selected fruit traits like fruit weight, length and width, flesh thickness, TSS, TA and edible portion and others were assessed based on the IBPGR descriptors.
- Peel, flesh and seed colors were described based from the Colour Chart of the Horticultural Society of London.
- The mean and standard deviation of all quantitative traits were taken.

“Niyog-niyugan” (*Ficus pseudopalma*) – family Moraceae

- Endemic species
- Fruits are ellipsoid, greyed orange
- Leaves are oblanceolate
- Fruit weight: 42.07 ± 4.2 g
- TSS: 11.16 ± 0.75 °Brix
- EP: $68.5 \pm 1.2\%$
- Ripe fruits are eaten fresh
- Leaves are eaten as vegetable
cooked in coconut milk





Libas (*Spondias pinnata*) – family Anacardiaceae

- Deciduous, medium to large tree
- Leaves are pinnate & alternate
- Fruits are roundish & yellow when ripe
- Fruit weight: 12.89 ± 1.66 g TSS: 14.5 ± 4.95 °Brix
- Green fruit and young leaves were used as souring agent
- Fruits are eaten raw (pulp & flesh are edible)



“Limonsito” or Limeberry
(*Triphasia trifolia* (Burm. F.) P.
Wils) – family Rutaceae

- **Green leaves are trifoliate**
- **Spheroid ripe fruits are maroon**
- **Fruit weight: 1.55 ± 0.52 g**
- **Flesh is very sweet & very juicy, aromatic**
- **TSS: 29.2 ± 2.75 °Brix**
- **EP of $26.7 \pm 3.2\%$**
- **The ripe fruit is eaten fresh or made into preserve**



Tagbak” (*Kolowratia elegans*) – family Zingiberaceae

- Endemic to the Philippines
- Oblanceolate leaves are arranged alternately on the pseudostem
- Ripe elliptic fruits are yellow
- Fruit weight: 10.89 ± 3.25 g
- TSS: 8.2 ± 2.5 °Brix
- EP of $89.3 \pm 2.5\%$
- The peel is yellow (RHCC 145A)
- White flesh has ginger-like aroma & bit sweet
- Ripe fruit is eaten fresh



“Is-is” or “Opli” (*Ficus ulmifolia* Lamk.) – family Moraceae

- Leaves are rough and coarsely toothed
- Ripe globose fruits are red to maroon
- Fruit weight: 1.53 ± 0.61 g
- TSS of 8.33 ± 1.53 °Brix
- Eaten mixed with rice during WWII
- Course leaves are used for scrubbing and cleaning



“Sinamomong sungsong” (*Aglaia odorata*) – family Moraceae

- Native to Southeast Asia
- Flowers are very fragrant
- Ripe fruits are red
- Ellipsoid fruit weighs 0.85 ± 0.61 g
- Flesh is sweet & bit juicy
- TSS: 22.3 ± 1.89 °Brix
- EP of 34.64 ± 8.03
- The ripe fruits are eaten fresh
- Use as ornamental plant



- “Bignay-pugo” (*Antidesma pentandrum*) – family Euphorbiaceae
- Native to Philippines, also found in Taiwan
- Smooth green leaves are arranged alternately on the stem
- Ripe fruits are purple
- Round fruit weighs 0.06 ± 0.009 g
- Violet flesh is sweet & juicy
- TSS: 9.71 ± 0.95 °Brix
- EP: 89.5 ± 5.0
- Ripe fruits are eaten fresh and processed into wine



“Kabuyaw” or “Kulobot” (*Citrus hystrix*) – family Rutaceae

- Obovoid yellow fruit is 45.65 ± 2.95 g
- Sub-acid vesicles & juicy
- TSS: 9.71 ± 0.95 °Brix
- EP: 89.5 ± 5.0
- TA: 18.3 ± 2.88 meq/10mL
- Peel is yellow green (RHCC 143A) when fully ripe, corrugated
- Leaves are used for flavouring dishes like “Thai green curry”
- Oil extracts have aromatherapy use, antibacterial, antidepressant, antiseptic, antiviral, insect repellent



“Bayag-usa” (*Voacanga globosa*) – family Apocynaceae

- Endemic to the Philippines
- Fruits come in pairs like the scrotum of a deer, hence its name
- Ripe fruits are dark grey in color.
- Fruit weight: 58.49 ± 1.2 g
- Reddish-orange flesh coating the seeds is bitter, dry but smooth
- The leaves are antimycobacterial, anticholinesterase and anti-cancer
- Fruits are used to treat food poisoning, ulcers and tumors



“Alingaro” (*Elaeagnus triflora* Roxb.) – family Elaeagnaceae

- Native to the Philippines, found in Taiwan, Australia, Malaysia and New Guinea
- Dark green leaves are simple & elliptic
- Ripe oblong fruits are dark red
- Fruit weight: 1.3 ± 0.95 g
- Red flesh is soft, sub-acid & juicy
- TSS: 16.1 ± 1.87 °Brix
- EP: $77.4 \pm 1.52\%$
- TA: 6.2 ± 2.88 meq/10mL juice
- Ripe fruits are eaten raw
- Fruits are also used to treat amoebic dysentery



- **“Pandakaki-Puti”**
(*Tabernaemontana pandacaqui*
Poir)- family Apocynaceae
- **Native to the Philippines, found in Taiwan and the Celebes**
- **Dark green leaves are elliptic-lanceolate & arranged decussately on the stem**
- **Dark red falcate fruits weigh 2.5 ± 1.21 g**
- **The leaves are used for the treatment of wounds to prevent swelling (anti-inflammatory), antiprotozoal, antibacterial, antimalarial and can hasten child birth and as herbal viagra**
- **Leaves are used as pesticide to control rice bug**



“Tambis” or Waterapple (*Syzygium aquem*) – family Myrtaceae

- Native to Southeast Asia
- Obovoid ripe fruits are red (RHCC 34A)
- Leaves are very aromatic when crushed
- Fruit weight: 14.25 ± 0.94 g
- White flesh is fine, sub-acid & juicy
- TSS: 6.14 ± 0.93 °Brix
- EP: $77.4 \pm 1.52\%$
- The ripe fruits are eaten raw with salt



Conclusion & Recommendation

- The native fruit species have unique fruit traits.
- They can be eaten fresh, made into processed products, used for culinary and medicinal purposes.
- Since they are still unknown to many in the Philippines, the following can be recommended:
- Their market acceptability as food and potential as souring agent like “Libas” and as flavoring agent like “Kabuyaw” should be further investigated.

Conclusion & Recommendation

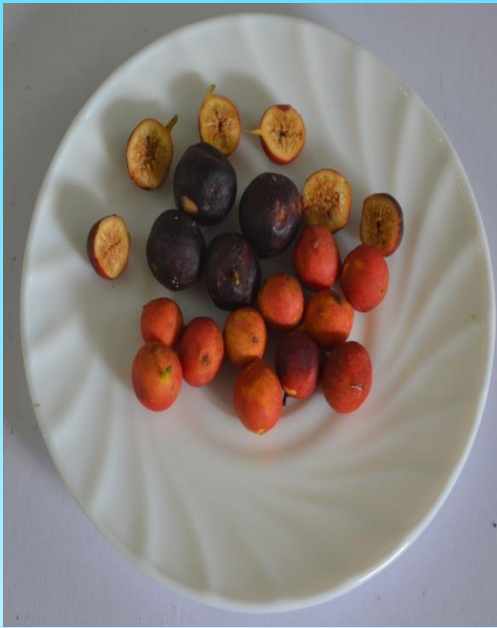
- **The medicinal properties especially as sources of anti-cancer drugs like “Bayagusa” should be studied in detail.**
- **The chemical composition of these native fruit should be also analyzed for nutrition and pharmacological uses.**
- **Post-harvest qualities and reaction to pests should be assessed.**

Conclusion and Recommendation

- **Efficient sexual and asexual propagation methods including nursery management should be developed for mass propagation and conservation.**
- **In addition, their resiliency to climate change for adaptation should be explored.**

Acknowledgement

- **CSC & IPB, UPLB-CA**
- **Rural people in Marinduque, Phil.**
- **SEA and EU Program on NUS**



**SALAMAT
PO,
MABUHAY!**

