“Soap plants”—A proof of concept

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Introduction

Jack,[1] at a youth conference for social change,[2] explained that poor people living in unsanitary conditions were not yet prepared to spend money on buying soap.

He envisioned that if there were “soap plants”—plants that could be directly used as soap substitutes—grown near their washing areas, sanitary conditions could be greatly improved.

This document aims to be a simple proof of concept of this vision, and attempts to give examples of “soap plants” from around the world. Most of the data was gathered from [PFAF] and [USDA et al.].

[1] Jack Sim, founder of the World Toilet Organisation

[2] SYINConnect ‘08: A conference on social change, 26th July 2008, Republic Polytechnic, Singapore

1 Soapnut/Soapberry

Figure 1: Fruit of *Sapinudus saponaria* [Gibbons, 2006]. Rubbing in water produces lather.

Soapnut or Soapberry, genus *Sapindus*, are shrubs or small trees found in warm temperate to tropical regions in the Americas and Asia. The fruit and seeds can be crushed or rubbed in water and used as soap. It is commonly used for washing clothes.

Figure 2: Tree of *Sapinudus saponaria* [USDA et al.]. It is found in the western hemisphere.

Family	Species	Distribution
Sapindaceae	*Sapindus mukorossi*	China, Eastern Asia, Indian Subcontinent, Indo-China
	Sapindus rarak	China, Indian Subcontinent, Indo-China, Malesia
	Sapindus saponaria	Southeastern USA, Mesoamerica, Caribbean, South America
	Sapindus trifoliatus	Indian Subcontinent

Table 1: Distribution for several species of Soapnut/Soapberry.

2 Soapbark tree/Panama wood

Soapbark tree or Panama Wood, *Quillaja saponaria*, is a species of evergreen trees found in Chile and Peru. The fresh or dried inner bark can be used as a soap substitute. It is an effective and gentle cleaner used for cleaning textiles and the skin.

Figure 3: Tree of *Quillaja saponaria* [Belov, 2006]. It is found in Chile and Peru.

3 Yucca

Yucca is a genus consisting of several species of perennials, shrubs and trees. Common names for individual species include Soaptree Yucca, *Yucca elata*, and Spanish Bayonet, *Yucca alifolia* or *Yucca baccata*. Yucca is native to North America.

The roots can be crushed and soaked in water to release the suds for use as a soap. It is a good hair wash and can be used on the body and for washing clothes.

Figure 4: Shrub of *Yucca alifolia* [USDA et al.]. It is found in USA, Mexico and Southern Europe

Family	Species	Distribution
Agavaceae	*Yucca elata*	USA, Mexico
	Yucca baccata	USA, Mexico
	Yucca alifolia	USA, Mexico and Southern Europe

Table 2: Distribution for several species of *Yucca*.

4 Soapworts

Figure 5: *Saponaria officinalis* [Hlasek]. The whole plant can be heated in water to obtain a soap.

Soapworts, genus *Saponaria*, are perennial herbs native to Europe and Southwest Asia. Soap can can be obtained by boiling/simmering the whole plant in water. The leaves and roots may contain higher concentrations of saponins. Soapworts are commonly used as a effective but gentle cleaner for delicate fabrics.

Family	Species	Distribution
Caryophyllaceae	*Saponaria officinalis*	Southern Europe, Southwest Asia
	Saponaria ocymoides	Europe

Table 3: Distribution for several species of Soapworts.

References

Michail Belov. Digital Photograph, 2006. URL http://www.chileflora.com/Florachilena/ImagesHigh/IMG_0874.jpg.

Robert J. Gibbons. Digital Photograph, 2006. URL http://www.ars-grin.gov/~sbmljw/cgi-bin/dispturl.pl?4035.

Josef Hlasek. Digital Photograph. URL http://www.hlasek.com/Saponaria_officinalis_4957.html.

PFAF. Plants for a future: Edible, medicinal and useful plants for a healthier world. Online Database (Accessed 01 December 2008). URL http://www.pfaf.org.

USDA, ARS, and National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). Online Database (Accessed 01 December 2008). URL http://www.ars-grin.gov/npgs/searchgrin.html. National Germplasm Resources Laboratory, Beltsville, Maryland.

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