



FANTASTIC HERBS AND HOW TO SUSTAIN THEM

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Introduction

Most countries in Southeast Asia share similar cultures and ways of living. However, there are still some differences; for instance, herbs which are used to advocate our quality of life in many ways, especially health. It is one of the most well-known Thai wisdom. Uses of herbs have numerous processes related to the sustainability of society such as varieties of herbs' species, reasonable uses of herbs, cultivation methods that might be the cause of biodiversity loss.

Organizing traditional Thai herbal product workshops and establishing scientific knowledge research projects especially using plants and herbs for promoting good health and well-being from other countries besides Thailand can help us know how other countries manage the usage of herbs. Moreover, this is a good opportunity to gain more knowledge and apply them with what we have and what we know, particularly herbal drugs which are related to our pharmacy field. Therefore, this project will benefit Thai people to have better health, more ability to manage the processes of using herbs effectively, sustainable consumption, and minimal impact on the ecosystem.

Abstracts

Herbs are used generally in Southeast Asia for many aspects especially in medicine. Therefore, having the knowledge of how to sustain plants and herbs is important. This project compares the use of herbs for public health and disease treatment in Thailand and Singapore, alongside an exploration of Singapore's government strategies of creating a sustainable urban development. A summarized of information gathered by visiting many gardens in Singapore which revealed innovative policies fostering sustainability, providing valuable insights for policymakers and urban planners

Objectives

1. SDG3 Healthcare: To learn and gather knowledge on how Singapore utilizes plants and herbs to promote the health and well-being of Singaporean people and acquire an understanding of the distinctions between Thai and Singaporean herbs and plants
2. SDG 15 Life on land: To learn and gather on how to apply scientific knowledge in promoting a sustainable environment and creating a sustainable resources management system especially for herbs and plants

Comparison between the usage of Thai and Singapore herbs



- Bark: Use as Antidiarrhea and treat dysentery

Flacourtia jangomas

- Wood: Use as Antidiarrhea
- Bark, Heartwood and Leaf: Use for reducing aches

- Root and Leaves: Have antiseptics and anti-inflammatory properties
- Seed: Have hallucinogenic properties

Argyreia nervosa

- Usually use to decorate in the garden
- Roots: Boil with water use as energy drink
- Leaves: Leaves juice use to treat inflammation and skin disease such as rash

- Every part have properties to treat tuberculosis and snake bite

Christia obcordata

- Use as decoration

- Seed and Oil from seed: Use to treat wart and corn
- Roots: Use to treat Malaria, Amebic dysentery and Diarrhea
- In the past use to treat scald, intestinal parasites and hemorrhoids

Lawsonia inermis

- Leaves: Heal a wound, poor lymphatic fluid
- Roots: Use as haemagogue, diuretics
- Bark: Use to eliminate poor lymphatic fluids in Leprosy
- Flower: Use as haemagogue and relieve headache
- Fruits: Use as haemagogue

- Leaves: Juice from boiled leaves use in postpartum
- Use as aphrodisiac
- Control the menstrual cycle

Ficus deltoidea

- Use as Garden decoration and there is belief it give the owner more charming and have a luck on business

- Rhizome: Have an anti-inflammation property and liver protecting property
- Leaves: Have anti-diarrhea property
- Leaves and roots is edible

Anredera cordifolia

- Vine knot: Boil and drink as tonic
- Leaves: Apply on burn skin, eat fresh leaves as hangover remedy
- Can use as contraceptives

Summary

Thailand and Singapore have variety of plants that are similar. Despite their different names, they have similar uses. For example, *Flacourtia jangomas*, which are used as antidiarrhea. On the contrary, some plants also have different uses. For example, *Ficus deltoidea* has been used for aphrodisiac, control menstrual cycle and postpartum, in contrast, in Thailand it is used only as a decoration according to faith. The comparison of applications of plants is made to raise awareness of the importance of plant conservation by showing the various healing properties of each plant.

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How Singapore manage & conserve herbal plant

1 Biophilic Indoctrination

The Singapore government fosters biophilic habits in every single object and place in Singapore.

• Education

Starting from the establishment for education, National university of Singapore, one of the most successful universities that is accomplished in sustainability, utilizes plants not only for providing a greenfield but also for enhancing their students to realize and raise the awareness of sustainable development. Spacious field is not just an empty space, every single area is useful such as planting herbs or edible plants around the campus. Moreover, building design and architecture are always attended to all the time. Plants and greenfields always create an ecosystem, a calm feeling and cool air inside the campus.

• Tourist attractions

One of the listed iconic places that people think of when talking about Singapore's tourist attraction is "Garden By the Bay." It consists of numerous species of plant form all over the world which become the exhibition for tourist which creating biophilic habit to them.

• Parks / Gardens

Singapore government not only provides biophilic habit to their citizen but they also represents to visitors. Fort Canning Garden is a good model of how to present plants to be more interesting among citizens and foreigners. These botanical gardens not only conserve a numerous species of plants but they also create an exhibition that presents both its name and their usage in front of the actual trees with the model to the readers. This way of presentation creates the biophilic habit to all visitors and provides the history of every spot in the garden. Moreover, the UNESCO world heritage, Singapore botanical garden, consists of many zones such as the park for relaxation, the exhibition, workshops, or even plants research which is provided Singaporean a good-life quality.



2 Sustainability is behind in every spot

• Tourist attraction

Plant conservation is the main thing in Garden By the Bay and maintenance typically consumes a lot of energy and cost, others might use air conditioning which consumes a lot of electrical energy, but this place is more complicated. Inside the flower dome consists of numerous species of plant so the temperature control is essential. They use glasses for controlling both light and minimizing heat. The air is dehumidified by a drying agent and cooled by using chilled water pipes below the conservatory to enable the cool air to stay in the lower zone and let the warm air rise up to the higher level. A biomass-power plant is not only generated energy for the chiller, it is also used for the recycling process of desiccant that dehumidifies the air. By that, there is no need to cool the high volume of air and reduced high energy consuming.

One of the interesting things that Singaporeans thoroughly consider is the souvenir. We found that many of them are recycled products such as refrigerator magnet, notebook, coaster for absorbing water drop from a glass of water etc. Hence, this is an example of how to use some of waste to reproduce a new valuable product sustainably and no more deforestation.

• Research and History

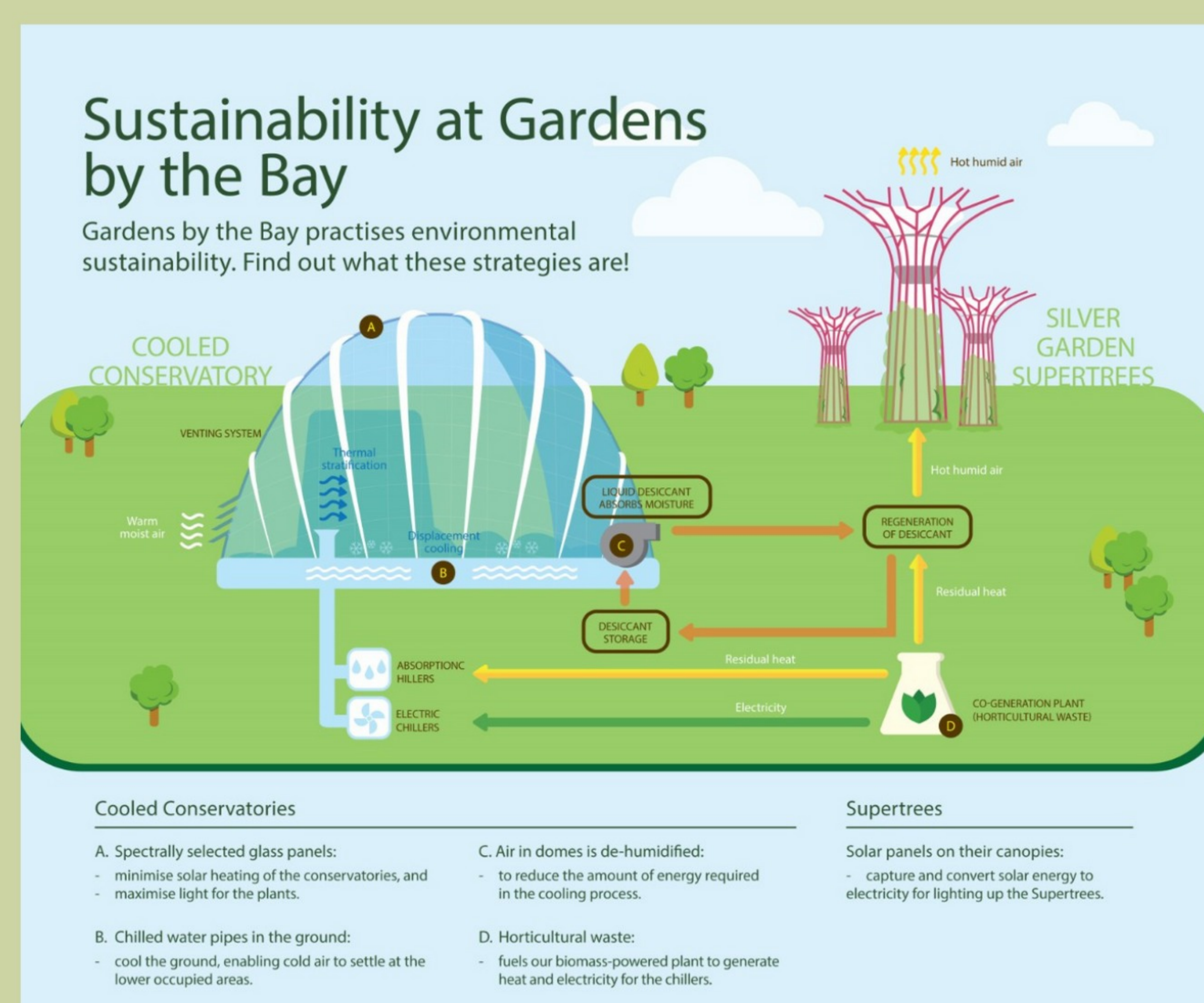
Singapore botanic garden not only a place that accumulates and conserves trees around the world, but also conduct researches in a zone called "Seed Bank" which collect Southeast Asian native plant seed for maintaining genetic diversity under the changing of global circumstances. Moreover, they also have an ethnobotany gallery and garden which represents the usage and the important of plants in human being in the past until now.

Summary

Singapore is one of the countries that values the importance of environmental conservation. There are various technologies that Singapore has applied in conservation. These methods and concept can be applied in plant conservation in Thailand. For example, the creation of plant conservation sites ready to be opened as tourist attractions, thus bringing environmental conservation and increasing economic value were happening at the same time. Moreover, there are beautiful and creative souvenirs that were made from recycling process which are famous among tourists. In the same way, Thailand has many unique plants that are well-known among Thais and foreigners in many fields, especially medical field. If conserved plant gardens in Thailand applied these ideas, it could make an impact on Thailand's environment preserving, tourism, and economic.

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