



Herbs for life

What do the rain forests give us?

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While many around the world today appreciate the bigger picture role of the rain forest in acting as the "lungs" of the planet in recycling carbon dioxide back into oxygen and its important role in reducing global warming, we may forget to appreciate that the rain forest has supplied and continues to provide us all also with unique plants that sustain us on a daily basis.

As a medical herbalist I especially witness on a daily basis the health benefits that the plant kingdom provides. As such, a field trip into the Malaysian rain forest is particularly exciting when you consider the enormous biodiversity of plants species that exist. Of these, only a minute percentage have been explored for their therapeutic, medicinal, culinary, aromatic or aesthetic potential. Malaysia boasts the fourth most biodiversity rich country in the world behind only the much larger countries of China, India and Indonesia. As such, there is an almost unlimited opportunity for new useful plant discoveries if this valuable resource is preserved wisely.

Our daily lives are filled with contact with non-timber rain forest products, whether it is the fruits we just ate or the

vegetables we had for lunch, as well as palm oil and spices used in cooking them or the common staples we enjoy so much as coffee, cane sugar and cocoa. In regards household goods and industry, try to imagine the impact that the discovery of rubber has made on modern civilization. Many modern prescription pharmaceutical drugs have also been developed from the world's rain forest plants and scientists today consider the rain forests to be one of the last frontiers for new drug discovery to find cures for the growing number of chronic diseases.

To really understand what the rain forest offers we need first appreciate its unique environment that allows for the complex diversity of plant and animal life to flourish. In every niche of the rain forest we find a sensitive balance or ecosystem, where each species is interdependent on the functioning of the surrounding species, and when disturbed by man's intervention then the balance of fauna and flora that has evolved over millennia is often irreparably altered resulting in species extinction.

The balance of the sensitive ecosystem begins at a height of 100-250 feet (that's as high as a 17-20 story building), where the forest canopy provides a cooling shade from the intense tropical sun and heavy rainfall is intercepted. The crowns of trees in the canopy form an almost closed roof on the forest below, and is further divided into upper and lower canopy. Because the top of the canopy

basks in almost constant sunlight and can absorb light more easily, trees tend to have smaller leaves than those at a lower level. The lower canopy is the richest layer in terms of animal and plant life. Most of the mammals that live in the canopy are nocturnal.

The understory extends from the forest floor up to about 80 feet. Leaves are often long and pointed, the ends of which form 'drip tips' allowing excess water to run off quickly. Little sunlight filters into the understory making it dark and humid. With intense competition for nutrients, understory plants have evolved to take advantage of every available space, from herbs, shrubs and trees to epiphytes, creepers and climbers. Where the only climatic changes between the seasons are from "hot" to "wet," plants take advantage of this conducive environment for rapid growth. It is here that the majority of our known medicinal herbs grow, in that area that is teeming with life of all kinds, insects, mammals, birds etc.

While the high rainfall and humidity allow for life to flourish, there is also a decomposition and renewal process that allows for the rapid flow cycle of nutrients through the whole system. The variety of decomposing plant life all contribute to the characteristic leaf litter bed, which together with tree roots holds the thin layer of organic matter in place, so as not to be washed away in the tropical downpours. This nutrient-filled soil is only around 4 inches deep with red clay or



sandy soil beneath it. When the canopy trees are cleared through forestation then the result is that the thin organic compost layer that all plants depend upon for nutrition is washed away and this can be seen throughout the tropics in the now thick brown soil filled rivers that are left behind wherever clearing has taken place.

Tropical rainforests occur in three major regions: Asia, Africa and in Central and South America. Most of the world's rainforests fall either side of the Equator between the Tropic of Capricorn and the Tropic of Cancer, covering 7% of the Earth's surface. Forests close to the Equator, as in Malaysia, receive year round rain are known as evergreen equatorial rainforests. Rain in these areas falls at a rate of between 100 and 400 inches a year; there is no winter, days and nights are equal in length and a consistently high temperature of around 21 - 32 degrees is maintained.

Rain forests represent the oldest forests on the planet (having escaped the ravages of the ice ages) with the Malaysian rain forest being incredibly old – essentially unchanged for 130 million years. As such the plants contained therein have had plenty of time to adapt and evolve to their surroundings. Typical features of the evergreen plants are their adaptations to the predatory effects of the abundant animal and insect kingdom such as thick fibrous leaves or bitter unappealing chemical content.

It is these very chemicals used by the plant in its adaptation to its environment have the potential to influence human physiology and are used in the development of medicines for mankind's ills.

Common Rainforest Produce Fruits and Vegetables

- Avocado
- Banana
- Grapefruit
- Guava
- Lime
- Mango
- Papaya
- Pineapple
- Plantain
- Sweet potato

Spices and Flavors

- Allspice
- Black pepper
- Cardamom
- Cayenne (red pepper)
- Chili pepper
- Chocolate / cocoa (products)
- Cinnamon
- Cloves
- Ginger
- Mace
- Nutmeg
- Paprika
- Turmeric
- Vanilla

Other Food Products

- Brazil nuts
- Cashew nuts
- Coconut
- Coffee
- Macadamia nuts
- Tapioca
- Tea

Ornamentals

- African violet
- Begonia
- Bird's-nest-fern
- Bromeliads
- Christmas cactus
- Rosy Periwinkle

Oils, Gums and resins

- Palm Oil
- Coconut Oil
- Rubber
- Chicle (chewing gum)
- Copal (varnish, printing ink)
- Dammar (varnish, lacquer)

These are only a very few of the many resources obtainable from the tropics and rain forests through sustainable extraction. Sustainable means that to safeguard and maintain the rain forest ecosystem, the needs of the present must be met without compromising the needs of future generations. Considering the wealth of products that humanity has derived from the rain forests of the world, from drugs to foods and timber, it becomes increasingly evident that the tropical rain forest is an irreplaceable treasure house of immense importance to all humanity. While the rain forest provides us with the necessary requirements for our life, the balance must be met whereby profits are not at the expense of the environment. If used sustainably, it will continue to serve the needs of the world for many generations to come.

“In the end, we will conserve only what we love, we will love only what we understand, we will understand only what we are taught.”



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