

Roses not only beautiful, but healing

October 15 2010, By Roziana Mohamed Hanaphi, Dalina Samsudin

A rose not just romances, it heals.

A rose by any other name will be as sweet, wrote Shakespeare. Ever sensuous and sweet, the splendor of rose is everywhere, enchanting romance and love. But other than romancing, a rose can also speak serious matters. There is medicine in a rose.

Roses have been grown for garden plants and cut flowers for decor and a source of natural fragrances and flavorings. Now there is no less than 7,500 varieties of them. Not only scenting a garden and beautifying homes, history also shows roses have been used in medicine, food, perfume, and health. They have essential oils for perfumes thus widely used in cosmetic. Then the scent of a rose can be in many forms - rose water, rose petals, rose buds, and rose oil.

Knowing there are many uses of roses, researchers Roziana and Dalina worked to find another use of a rose for health, attempting to find an antibacterial agent in it. They did it by extracting the fresh rose and rose residue in different polarity of solvents.

Influenced by how our forebears used many kinds of plants to heal diseases, Roziana and Dalina found that botanical extracts have long been used to treat disease. Plants are known to have rich sources of valuable compounds and have been a major source of primary health care in many developing countries. These compounds are used as the active principle of many drugs. The screening of such plant extracts for antimicrobial activity has always been of great interest to scientists to

look for new sources for food additives, cosmetics and drugs.

Thus likewise, Roziana and Dalina saw that roses have potential against microbial activities. They attempted to prove that the ethnobotanical use of rose petals can be a cure of diarrhea and enlarged tonsils, commonly caused by E.coli. In their experiment, an extraction process using several solvents was conducted, testing the extracts for antibacterial activity on [Escherichia coli](#) - the gram negative [bacteria](#), through Kirby-Bauer disc diffusion method.

The petal tissues of flowers may possess antibacterial activity as a natural protection system for reproduction and further perpetuation through seed formation. So some rose varieties have been studied for differential activity potential at genotypic level and found to be active against a spectrum of the gram-positive and gram-negative bacteria with differences in activity profiles.

Usually, the different polarity compounds are extracted from roses but in this study, it was extracted from the roses residue. Extracted roses usually contain linalool, phenylethyl alcohol, citronelol, nerol and geraniol. While the the main compounds of rose extracted by solvent extraction are isopropyl myristate, rhodinol, 1-nonadecene and heneicosane. These compounds can be detected by gas chromatography with a spectrometry apparatus and generally, they have different polarity where they will be separated into similar groups of polarity solvent.

As the objective of the solvent extraction method is to separate the organic mixture into a similar groups of compounds, theoretically, the extracted polar compound has the tendency to be with the polar solvent. Hence the non polar compound will be rather chosen to be the non polar solvent.

To find antibacterial values, Roziana and Dalina used the Kirby Bauer

disk diffusion susceptibility test. It was to determine the susceptibility or resistance of pathogenic aerobic and facultative anaerobic bacteria to various antimicrobial compounds. They screened the extracts for antibacterial activity where a paper disc was soaked with the rose extracts then laid on the top of an inoculated agar plate.

During incubation, each chemotherapeutic agent diffuses out from the disc in all directions. Agents with lower molecular weights diffuse faster than those with higher molecular weights. Clear areas, called zones of inhibition, appear on the agar around discs where the agents inhibit the microorganism. An agent of large molecular size might be a powerful inhibitor even though it might diffuse only a small distance and produce a small zone of inhibition.

Good news folks, Roziana and Dalina found that the fresh rose extract from ethyl acetate showed the most promising result from the other four extracts. It showed a 39 mm zone of inhibition on Mueller Hinton agar, the largest diameter zone compared to the other extracts, indicating that the Gram-negative bacteria of *E.coli* were highly susceptible to the extract. This means the [rose](#) extract was potential to kill or retard the growth of *E.coli*. They concluded that the intermediate polar compounds in roses either fresh or residues, they are giving great potential as [antibacterial agent](#) in order to inhibit the *E.coli*.

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