

Verification of whitening effect of Myanmar herb and analysis of whitening component

Hiroyuki Morita

Institute of Natural Medicine, University of Toyama

The bark and wood of *Hesperethusa crenulata* Roem., *Naringi crenulate* (Roxb.) Nicols., *Limonia acidissima* Linn. belonging to Rutaceae, as well as *Premna integrifolia* Linn. (Verbenaceae) have been used to produce traditional cosmetics, also known as “Thanaka” cream, for over 2000 years in Myanmar. Applying the paste to the skin of the face, arms, and legs have been believed to make it smooth, clear, and cool, and also increases the production of collagen and elastin to prevent wrinkles and skin aging, excessive facial oil, serious acne, pimples, blackheads, and whiteheads. Among the plants used as “Thanaka”, the most popular ones among customers are the former three, whereas the last one is especially popular in the Tanintharyi Region, in the southern part of Myanmar. However, *P. integrifolia* has not been investigated in a scientific, evidence-based manner. Hence, we evaluated *in vitro* melanin deposition regulatory, anti-inflammatory, antibacterial, and antifungal activities of the water, methanol, and chloroform extracts of *P. integrifolia*, and found that all extracts showed the above mentioned activities. In particular, the chloroform extract showed the highest potency in the anti-melanin deposition and anti-inflammatory activities, suggesting the cosmetic effectiveness of this plant. In order to further clarify the cosmetic effectiveness of this plants from the chemical component point of view, we carried out the isolation of the compounds from the chloroform extract, and obtained 21 compounds including six new lignans. Interestingly, ten compounds exhibited strong or moderate anti-melanin deposition activities, providing new insight into the effectiveness of this plant as a cosmetic ingredient. Additionally, five compounds showed weak melanogenesis enhancing activities. The present results also suggest that the cosmetic anti-melanin deposition efficacy of the *P. serratifolia* wood should be discussed with consideration of the melanogenesis enhancing activities of the chemical constituents in this plant.