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Diversified natural products in *Rhododendron formosanum* reveal allelochemical and pharmaceutical properties

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Rhododendron formosanum, an endemic plant in subtropical region of Taiwan, possesses diversity of natural products such as phenolic acids, flavonoids and terpenoids in leaves and other plant parts. Underneath the vegetation, there is almost lacking understory species which turns out to be an allelopathic phenomenon. We have already demonstrated the unique pattern of allelopathy which was due to the allelopathic substances released from the plant leaves. The responsible allelopathic substances are water soluble phenolic acids, namely, *p*-hydroxybenzoic, methyl-ferulate, syringic acid, vanillic acid, coumarin, and protocatechuic acid. On the other hand, cinnamtannin D1, a trimer of catechin, from the plant induces autophagy via the inhibition of Akt/mTOR activation of ERK1/2 non-small cell lung carcinoma cells. Additionally, ursolic acid, a triterpenoid isolated from the plant, also exhibits the apoptosis of the aforementioned cancer cell. Two related triterpenoids such as oleanolic acid and betulinic acid isolated also performed anti-pathogenic bacteria activity against *Staphylococcus aureus*, *Bacillus cereus*, *Enterococcus faecalis* and *Listeria monocytogenes*. Overall, the diversified natural products of phenolics, flavonoids and terpenoids, in deed, showed profound multifunctions of both allelochemical and pharmaceutical activities. These diverse functions of natural products produced from the *R. formosana* play an important role in sustainable agriculture and pharmaceutical application that certainly are beneficial to human-being.

Biography

Chang-Hung Chou obtained his PhD at University of California, Santa Barbara in 1971. He is Chair Prof. and Dir. of the Research Center for Biodiversity, China Medical University. He was Vice-President and National Chair Professor at National Sun Yat-Sen University, 1999-2002, President of National Pingtung University of Science and Technology, 2002-2006 and vice President, PSA, 2011-2015. His honors are: Highest Award of International Academic Cooperation, Russian Academy of Science, 1999 and Life Time Achievements Award 2009 awarded by International Allelopathy Foundation, Life Time Contribution to Biological Science Award, and Life Time Achievement Award of Botanical Society of Taiwan. He is academician at The World Academy of Sciences (TWAS), 1993 and Academia Sinica, Taiwan, 1994.

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