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Artemisinin and the Nobel Prize in physiology or medicine 2015

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In this issue of the Korean Journal of Pain, an experimental research paper about the antinociceptive effect of Artemisinin is presented [1].

Artemisinin and its semisynthetic derivatives are a group of medicines used to treat malaria due to Plasmodium falciparum [2]. Artemisia plants include about 300 species worldwide, and are distributed in temperate, warm temperate, and subtropical regions, mainly in Asia, Europe, and North Africa. In Korea, it is known as Annual Wormwood.

Scientists worldwide had screened over 240,000 compounds against malaria, but the search ended in failure. In 1969, Tu Youyou, a Chinese pharmaceutical chemist and educator, had the idea of screening Chinese herbs. She first investigated the historical Chinese medical classics, and visited practitioners of traditional Chinese medicine all over the country on her own. She gathered her findings in a notebook called "A Collection of Single Practical Prescriptions for Anti-Malaria". Her notebook summarized 640 prescriptions. By 1971, her team had screened over 2,000 traditional Chinese recipes and made 380 herbal extracts, from some 200 herbs, which were tested on mice.

Tu discovered Artemisinin and its derivatives were discovered in 1972. Her discovery of artemisinin and dihydroartemisinin was a significant breakthrough in 20th century tropical medicine, saving millions of lives in South China, Southeast Asia, Africa, and South America. For her dedication to Artemisinin, she was awarded half of the 2015 Nobel Prize in medicine. Tu is the first Chinese Nobel laureate in physiology or medicine and the first female citizen of the People's Republic of China to receive a Nobel Prize in any category.

Interestingly, it is known that Artemisinin and its derivatives (artemisinins) might have a therapeutic value for several other diseases beyond malaria, including cancers, inflammatory diseases, and autoimmune disorders. Recently discovered properties of artemisinins suggested that they might be used to treat neurodegenerative disorders by decreasing oxidation, inflammation, and amyloid beta protein [3].

Especially, in this issue, the authors used the writhing test as an inflammatory pain model, and they suggested that antinociceptive effects of artemisinin are mediated by $GABA_A$ receptors. We need to further investigate the antinociceptive or anti-inflammatory effect of Artemisinin.

We find many traditional plants and natural products all around us. If we make the extra effort to investigate novel substances, we could be the ones to discover new strategies and drugs for management of pain in the future.

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CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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