

Safer, more effective skin-whitening creams from ancient Chinese herbal medicine

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Scientists today reported discovery of the active ingredients in an herb used in traditional Chinese medicine for skin whitening, changing skin color to a lighter shade. The ingredients are poised for clinical trials as a safer, more effective alternative to skin whitening creams and lotions that millions of women and some men use in Asia and elsewhere, they said. The report was among more than 9,500 presentations this week at the 241st National Meeting & Exposition of the American Chemical Society (ACS).

The finding, which caps an intense search for these natural skin lightening substances, could be a boon to women in Asian countries, said study leader Hui-Min Wang, Ph.D. He explained that skin whitening products are all the rage there, but too-often accompanied by itching, redness, inflammation, and other side effects.

"Toxic skin whitening creams are a growing threat to women's health, especially in Asia," Wang said. "We hope that our product will improve lives and provide a safer, more natural way to lighten skin. A cream based on these herbal ingredients could be available on store shelves in as little as a year."

Skin-whitening is big business in countries like China, Japan, Korea, and India, where many women view whiter skin as a symbol of beauty, good health, and high social status. One study estimates that half the women in Asian countries use skin lightening creams, spending the equivalent of several billion dollars annually. People also use such products to fade

unsightly age spots, freckles, and scars that have collected pigment.

Dozens of skin whitening creams, lotions, and other products are on sale throughout Asia. Some products contain toxic mercury, hydroquinone, and other potentially toxic substances that can cause redness, itching, inflammation and other skin problems. Some whitening ingredients could increase the risk of skin cancer when used frequently and at high doses, Wang said, citing the need for safer, more effective alternatives.

Wang and colleagues say that they have found a promising alternative in the form of an herbal "cure-all" used in [traditional Chinese medicine](#) in the form of soup or tea. The evergreen bush, *Cinnamomum subavenium*, is a close relative of the trees whose inner bark is the source of cinnamon. The scientists isolated two chemicals from the plant that have the ability to block tyrosinase, an enzyme that controls the synthesis of melanin, a dark pigment responsible for coloring skin, hair, and eyes. Inhibiting tyrosinase is one of the major strategies for skin-whitening, Wang said.

They tested these so-called "melanogenesis inhibitors" on the embryos of zebrafish, which are widely used as stand-ins for people and other animals in biomedical research. The embryos contain a highly visible band of black pigment. Exposure to low levels of the two chemicals reduced melanin production in the fish embryos by almost 50 percent within just four days, turning the embryos snowy white, the scientists said.

"When we saw the results, we were amazed," said Wang, who is with Kaohsiung Medical University in Taiwan. "My first thought was, well, 'If these herbal whiteners can transform zebrafish embryos from black to white, maybe they can also lighten women's skin.'"

He estimated that the chemicals are 100 times more effective in

reducing melanin pigmentation than the common skin whitening agents kojic acid and arbutin, which have been used in cosmetics for more than 30 years. The substances did not appear to be toxic when tested in low doses on both cultured human skin cells and zebrafish embryos, Wang noted.

Wang is looking forward to clinical trials of a new beauty product based on the ingredients. Just a one percent solution of the chemicals could achieve dramatic skin whitening, Wang said, adding that several cosmetic companies are working with his group. Wang and his colleagues have applied for patents in the U.S., Japan, and Taiwan.

Provided by American Chemical Society

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