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FILE: ■ *Pelargonium sidoides*
■ Upper Respiratory Tract Infections
■ Immunomodulators

HC 110133-253

Date: March 31, 2004

RE: Extract of African Herb *Pelargonium sidoides*: Antibacterial and Immunostimulating Activity

Kolodziej H, Kayser O, Radtke OA, Kiderlen AF, Koch E. Pharmacological profile of extracts of *Pelargonium sidoides* and their constituents. *Phytomedicine* 2003;10(suppl IV):18–24.

Root extracts from *Pelargonium sidoides*, a black-flowered perennial of the geranium family, have long been used in southern Africa to treat gastrointestinal disorders and respiratory infections, particularly tuberculosis. More recently, a proprietary extract of the roots of *P. sidoides* (code name EPs 7630; trade name Umckaloabo®; Iso-Arzneimittel, Ettlingen, Germany), was developed and introduced into modern phytotherapy in Europe. This extract is predominantly composed of highly oxygenated coumarins, phenols, and proanthocyanidins—the antibacterial and immunomodulatory activities of which have been established in vitro. In this study, the authors further assess the pharmacological profile of EPs 7630.

Aqueous extracts of EPs 7630 were prepared from the roots of *P. sidoides*. Radiometric and Alamar Blue susceptibility assays were performed on the extracts to determine antibacterial activity in several strains of bacteria and antimycobacterial activity in *Mycobacterium tuberculosis*. Additional assays were performed to determine the release of tumor necrosis factor and the induction and activity of interferon to assess immunostimulatory activity.

The antibacterial activity of EPs 7630 was evident at minimum inhibitory concentrations of 220–20000 µg/mL. The phenol gallic acid significantly reduced the cytopathic (relating to, characterized by, or producing pathological changes in cells) effect of encephalomyocarditis virus cells. Of the coumarins, umekalin showed the strongest inhibition of the cytopathic effect; the other phenols and coumarins showed only "negligible effects." Pronounced inhibition of the growth of *M. tuberculosis* was observed in a crude root extract;

however, none of the isolated phenolic compounds or coumarins showed antimycobacterial activity. In addition, EPs 7630 stimulated interferon- β synthesis in MG-63 osteosarcoma cells and was shown to have tumor necrosis factor-inducing potency.

The "demonstrated pharmacological activities" of EPs 7630, including moderate broad-spectrum antibacterial activity and "remarkable" immunomodulatory activities, are evidence of the efficacy of EPs 7630 for treating respiratory tract infections. No clear chemical constituent or class and constituents are responsible for the observed pharmacological effects. Activity seems to be dependent on the synergistic effects of various components or on an as yet unidentified component. Studies to gain a better understanding of the mode of action of EPs 7630 at the molecular level are currently underway.

—*Brenda Milot, ELS*

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