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Antiproliferative and Apoptotic Effects of Chamomile Extract in Various Human Cancer Cells

Janmejai K. Srivastava†, and Sanjay Gupta*†‡
Department of Urology, Case Western Reserve University, Cleveland, Ohio 44106, University Hospitals Case Medical Center, Cleveland, Ohio 44106, and Case Comprehensive Cancer Center, Cleveland, Ohio 44106

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* To whom correspondence should be addressed: Department of Urology, Case Western Reserve University, University Hospitals Case Medical Center, 10900 Euclid Ave., Cleveland, OH 44106. Phone: (216) 368-6162 . Fax: (216) 368-0213. E-mail: sanjay.gupta@case.edu., † Case Western Reserve University and University Hospitals Case Medical Center., ‡ Case Comprehensive Cancer Center.

Abstract

Chamomile (*Matricaria chamomilla*), a popular herb valued for centuries as a traditional medicine, has been used to treat various human ailments; however, its anticancer activity is unknown. We evaluated the anticancer properties of aqueous and methanolic extracts of chamomile against various human cancer cell lines. Exposure of chamomile extracts caused minimal growth inhibitory responses in normal cells, whereas a significant decrease in cell viability was observed in various human cancer cell lines. Chamomile exposure resulted in differential apoptosis in cancer cells but not in normal cells at similar doses. HPLC analysis of chamomile extract confirmed apigenin 7-*O*-glucoside as the major constituent of chamomile; some minor glycoside components were also observed. Apigenin glucosides inhibited cancer cell growth but to a lesser extent than the parent aglycone, apigenin. Ex vivo experiments suggest that deconjugation of glycosides occurs in vivo to produce aglycone, especially in the small intestine. This study represents the first reported demonstration of the anticancer effects of chamomile. Further investigations of the mechanism of action of chamomile are warranted in evaluating the potential usefulness of this herbal remedy in the management of cancer patients.

Keywords: apigenin; apigenin 7-*O*-glycoside; apoptosis; cancer chemoprevention; chamomile; Prostate cancer

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