Flavonoids in *Helichrysum pamphylicum* Inhibit Mammalian Type I DNA Topoisomerase

Zeki Topcu\(^a,\)*, Bintug Ozturk\(^b\), Ozlem Kucukoglu\(^c\), and Emrah Kilinc\(^d\)

\(^a\) Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Ege University, 35100 Izmir, Turkey. E-mail: zeki.topcu@ege.edu.tr

\(^b\) Pharmaceutical Botany, Faculty of Pharmacy, Ege University, 35100 Izmir, Turkey

\(^c\) Pharmaceutical Toxicology, Faculty of Pharmacy, Ege University, 35100 Izmir, Turkey

\(^d\) Analytical Chemistry, Faculty of Pharmacy, Ege University, 35100 Izmir, Turkey

* Author for correspondence and reprint requests

Z. Naturforsch. 63\(c\), 69–74 (2008); received August 3/September 7, 2007

DNA topoisomerases are important targets for cancer chemotherapy. We investigated the effects of a methanolic extract of *Helichrysum pamphylicum* on mammalian DNA topoisomerase I via *in vitro* plasmid supercoil relaxation assays. The extracts manifested a considerable inhibition of the enzyme’s activity in a dose-dependent manner. We also performed a HPLC analysis to identify the flavonoid content of the *H. pamphylicum* extract and tested the identified flavonoids; luteolin, luteolin-4-glucoside, naringenin, helichrysin A and isoquercitrin, on DNA topoisomerase I activity. The measurement of the total antioxidant capacity of the flavonoid standards suggested that the topoisomerase inhibition might be correlated with the antioxidant capacity of the plant.

**Key words:** *Helichrysum pamphylicum*, DNA Topoisomerase