Antiviral and Antimicrobial Assessment of Some Selected Flavonoids
Berrin Özçelik\textsuperscript{a}, Ilkay Orhan\textsuperscript{b,*}, and Gülner Toker\textsuperscript{b}

\textsuperscript{a} Department of Pharmacognosy, Faculty of Pharmacy, Gazi University, 06330, Ankara, Turkey
\textsuperscript{b} Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Gazi University, 06330, Ankara, Turkey. E-mail: iorhan@gazi.edu.tr

* Author for correspondence and reprint requests


In the current study, the results of antibacterial, antifungal, and antiviral activity tests of four flavonoid derivatives, scandenone (1), tiliroside (2), quercetin-3,7-O-\textalpha-L-dirhamnoside (3), and kaempferol-3,7-O-\textalpha-L-dirhamnoside (4), are presented. Antibacterial and antifungal activities of these compounds were tested against \textit{Escherichia coli}, \textit{Pseudomonas aeruginosa}, \textit{Proteus mirabilis}, \textit{Klebsiella pneumoniae}, \textit{Acinetobacter baumannii}, \textit{Staphylococcus aureus}, \textit{Bacillus subtilis}, and \textit{Enterococcus faecalis}, as well as the fungus \textit{Candida albicans} by a microdilution method. On the other hand, both DNA virus \textit{Herpes simplex} (HSV) and RNA virus \textit{Parainfluenza-3} (PI-3) were employed for antiviral assessment of the compounds using Madin-Darby bovine kidney and Vero cell lines. According to our data, all of the compounds tested were found to be quite active against \textit{S. aureus} and \textit{E. faecalis} with MIC values of 0.5 \(\mu\text{g/ml}\), followed by \textit{E. coli} (2 \(\mu\text{g/ml}\)), \textit{K. pneumoniae} (4 \(\mu\text{g/ml}\)), \textit{A. baumannii} (8 \(\mu\text{g/ml}\)), and \textit{B. subtilis} (8 \(\mu\text{g/ml}\)), while they inhibited \textit{C. albicans} at 1 \(\mu\text{g/ml}\) as potent as ketoconazole. However, only compound 3 displayed an antiviral effect towards PI-3 in the range of 8–32 \(\mu\text{g/ml}\) of inhibitory concentration for cytopathogenic effect (CPE).

Key words: Flavonoids, Antiviral Activity, Antimicrobial Activity