OP19. BIOLOGICAL EFFECTS OF *CYPERUS ROTUNDUS* AND IT'S CHEMISTRY

Abrar ALMALLAH[1], Ömerül Faruk TAVLI[2]*, Mehmet BOĞA[3], Alevcan KAPLAN[4], Emel Mataracı KARA[5], Esra Eroğlu ÖZKAN[1]

[1] Istanbul University, Faculty of Pharmacy Department of Pharmacognosy,Istanbul
[2] Afyonkarahisar Health Sciences University, Faculty of Pharmacy Departmentof Pharmacognosy, Afyonkarahisar, TÜRKİYE
[3] Dicle University, Faculty of Pharmacy Department of Analytical Chemistry, Diyarbakır TÜRKİYE
[4] Batman University Sason Vocational School, Batman, TÜRKİYE
[5] Istanbul University Faculty of Pharmacy Department of Pharmaceutical Microbiology, Istanbul, TÜRKİYE
*Corresponding Author. E-mail: omerulfaruktavli@gmail.com

Cyperus rotundus (Cyperaceae) is a wild plant spread worldwide in tropical and subtropical areas, and it is known widely for its uses in conventional medicine to treat many ailments. In this research, the seeds of *C. rotundus* were subjected to extraction processes involving petroleum ether ***(a)***, dichloromethane ***(b)***, ethyl acetate ***(c)***, and methanol ***(d)***using a Soxhlet apparatus. Additionally, the seeds were macerated with methanol ***(e)***,and an infusion ***(f)*** was prepared using water. These extracts were used to investigate the plant's antimicrobial, antioxidant, and enzyme-inhibitory activity. The antimicrobial activity of plant extracts was evaluated against ten pathogenic microorganisms, where inhibitory effect was observed against *Candida tropicalis* with 78.12 µg/mL MIC in ***(a)***.Total phenolic and total flavonoid contents were performed, and it is shown that ***(c)***had high phenolic and flavonoid contents (62.32±1.21 μg PEs/mg extract, 25.07±0.57 μg QEs/mg extract, respectively). On the other hand, the antioxidant potential of the extracts was evaluated by DPPH and ABTS radical scavenging and CUPRAC activity methods. ***(d)*** was the most active (IC_{50}=17.63±0.35 µg/mL, and IC_{50}=12.44±0.19 µg/mL, $A_{0.5}$=26.11±0.21 µg/mL) regarding the DPPH, ABTS, and CUPRAC assays respectively. Acetylcholinesterase, butyrylcholinesterase, and tyrosinase enzyme inhibitoryactivities were conducted. ***(c)*** was the most active against acetylcholinesterase enzyme (IC_{50}=49.29±1.44 µg/mL) compared with galantamine as a standard molecule (IC_{50}=8.53±0.20). ***(d)*** showed high butyrylcholinesterase, and tyrosinase inhibitory activity (IC_{50}=13.40±0.14, and 136.79±1.66 respectively) compared with galantamine (IC_{50}=38.66±0.49), and kojic acid (IC_{50}=21.70±0.97) respectively. Phenolic compounds of the extracts were conducted by LC/HR-MS. While a high value of phenolics was detected as an ingredient of
(c) compared to other extracts, kaempferol was detected from ***(c)*** as a major compound. Chlorogenic acid was detected as the major phenolic in ***(d)***, which showed the high antioxidant effect. *C. rotundus* which has high therapeutic potential, showed notable anticandidal, antioxidant, anti-butyrylcholinesterase, and anti-tyrosinase effects.

Keywords: Cyperus; enzyme; antioxidant