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EFFECTIVENESS OF LEAF EXTRACTS OF *BYRSOCARPUS COCCINEUS* (CONNARACEAE) AND *ALBIZIA GLABERRIMA* (LEGUMINOSAE) AGAINST REPETITIVE, COMPULSIVE-LIKE BEHAVIORS IN MICE

Akindele A.J.[1,3]; Hiroaki-Sato V.A.[2]; Joca S.R.L.[2]; Pupo M.T.[1]

[1]Department of Pharmaceutical Sciences; [2]Department of Physics and Chemistry, School of Pharmaceutical Sciences of Ribeirao Preto, University of Sao Paulo, Brazil.
[3]Department of Pharmacology, Therapeutics & Toxicology, Faculty of Basic Medical Sciences, College of Medicine, University of Lagos, Lagos, Nigeria.
E-mail: ajakindele@cmul.edu.ng

ABSTRACT

Obsessive-compulsive disorder (OCD), a debilitating psychiatric condition characterized by repeated expression of meaningless behaviors, is a major health problem worldwide with limited therapeutic options [1]. The marble burying test (MBT) is a useful model of obsessive compulsive behavior (OCB) [2]. In this study, the successive hexane, ethyl acetate and ethanol extracts of *Byrsocarpus coccineus* (BC) and *Albizia glaberrima* (AG) were evaluated for effectiveness against repetitive, compulsive-like behaviors in C57 mice using the MBT and open field test (OFT). The experimental procedures were adopted from the previously approved project by the local Ethical Committee (protocol number: 146/2009) and were in accordance with the Brazilian Society of Neuroscience and Behavior guidelines for the care and use of laboratory animals. Groups of male mice (n=8) were treated i.p. with vehicle (10 ml/kg), paroxetine (5 mg/kg), and the extracts (10, 30 and 100 mg/kg). 30 minutes post-treatment, mice were submitted to the MBT for 30 min. with number of marbles buried and displaced, and number of burrows recorded. Another pool of animals were similarly treated and subjected to the OFT, to test for possible false positive results, 30 min. post-treatment for duration of 5 min. The total number of sectional crossings, % central section crossings and time spent in the central section were noted. Agents with potential effectiveness in OCB reduce the number of marbles buried and displaced, and the number of burrows while classical anxiolytics will increase the % central section crossings and time spent in the central section in the OFT. In this study, paroxetine and BC-HEX (30 mg/kg) significantly ($p<0.01$, 0.05) reduced the % marbles buried (0%, 23.96±6.76%), % marbles displaced (1.04%, 27.38±5.05%) and number of burrows (0.63±0.32, 2.88±0.55) relative to the vehicle (38.54±5.21%, 42.71±4.00% and 3.75±0.41 respectively). All the AG extracts significantly ($p<0.0001$) reduced the % marbles buried with peak effects at doses of 100, 100 and 10 mg/kg respectively for AG-HEX (0%), AG-EtOAc (2.08%) and AG-EtOH (8.33±3.15%) compared to the vehicle (38.54±5.21%). Paroxetine and the AG extracts also significantly ($p<0.05$-0.0001) reduced the % marbles displaced and the number of burrows relative to the vehicle. In respect of the OFT, paroxetine caused significant ($p<0.0001$) increase in the total number of sectional crossings compared to the vehicle (174.40±13.26 vs. 85.38±14.94) without significant effects ($p>0.05$) on % central section crossings and time spent in the central section relative to the vehicle. All the BC and AG extracts did not significantly alter ($p>0.05$) the 3 parameters observed in the OFT. Findings in this study suggest that BC-HEX and AG extracts attenuate repetitive, compulsive-like behaviors in mice. Ongoing fractionation of the active extracts is geared towards isolating the active chemical principles.

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