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The effect of nobiletin on behavioral function in plus elevated and forced swim tests in amyloid beta-induced model of Alzheimer's disease in the rat

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Background and Objective: Alzheimer's disease (AD) is the most common form of dementia that is considered a chronic and progressive syndrome, that leads to the irreversible loss of neurons, particularly in the cortex and hippocampus. In this study we considered whether nobiletin has any effect on behavioral function in plus elevated and forced swim tests in amyloid beta-induced model of Alzheimer's disease in the rat.
Materials and Methods: 32 male rats were randomly divided into four groups as follows: group A (Sham), group B (sham+nobiletin), which were administrated nobiletin (10 mg/kg) daily one hour after surgery for one week via gavage, group C (Aβ): which amyloid β1-40 (2 nanomol/2 µl) was injected into hippocampal region (CA1) bilaterally, and group D (Aβ + nobiletin), which were administrated nobiletin (10 mg/kg). Furthermore, two behavioral tests including elevated plus maze and forced swimming tests were used to assess animal performance.
Results: The results showed that group C has a significant increase regarding anxiety, Moreover, Aβ group which was treated with nobiletin exhibited significant reduction of the aforementioned parameters. Meanwhile, no significant changes were observed in nobiletin-treated sham group.
Conclusion: Taken together, these findings suggest that nobiletin could reduce anxiety in amyloid beta-induced model of AD in the rat with no significant effect on depression.
Keywords: Alzheimer's disease, Amyloid beta, anxiety and depression, Nobiletin, Elevated plus maze, Forced swimming test

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Evaluation of antiviral properties of Yarrow alcoholic extract in ovo inoculation of Newcastle disease virus

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Yellow Yarrow (Achillea biebersteinii) is a kind of plants belonging to the Astraceae family which found in Europe, Turkey, Iran and Central Asia. In addition to its traditional application, this plant is remarkable due to its extract characteristics in modern medicine and various industries. The aim of this study was to evaluate the antiviral properties of alcoholic extract of yarrow on Newcastle disease virus.
Material and methods: for this purpose, the plant extract was prepared at 200 and 400 mg/ml dilutions and inoculated with virus (500µl of extract plus 500 µl of each virus dilution) into 9-day-old fertilized egg by Allantois fluid injection method. The eggs were kept at 350c and after 7 days, the EID50 virus and virus + extract composition were calculated by REED and MUNCH method.
Results: results showed that yellow yarrow extract at 200 and 400mg/ml dosage decreased the potency of the virus 50 and 100 times compared to the virus group respectively.
Conclusion: in this study, since at the beginning, the extract were adjacent to the virus and then injected into the eggs; it is likely that the plants antiviral properties may be influenced on the structure or ligands of the virus, so that it prevented the virus binding to the cell. It may also affect the process of virus replication within the cell. Due to the antiviral properties of yellow yarrow, this plant can be used for various industries, especially pharmaceuticals.
Key word: Achillea biebersteinii, Newcastle, egg