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Vaccinium ashei READE – Chemical Composition and Pharmacology Activity

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Abstract: *Vaccinium ashei* READE (*V. ashei*) popularly known as blueberry, belongs to the family Ericaceae and it is included to the small fruit group[1]. Blueberry fruits are known for their high amount of health-promoting substances, such as anthocyanins, phenolics and flavonoids compounds[2]. Recent studies have been showed that blueberry leaves have high content of phenolics compounds[3] with numerous pharmacology activities[4]. In view of the *V. ashei* diversity chemical constitution, these study aim to evaluate the phenolic content, antioxidant, antimicrobial and antidepressant-like activity of *V. ashei* leaves (Cultivar clímax). *V. ashei* was coleted in Erechim/RS (27º38´3"S and 52º16´26"W), in December/2013. Leaves of *V. ashei* were macerated (water:ethanol, 1:1, V/V) for 72 hours[5]. Total flavonoids and total phenolics were determined. Phenolic compounds profile were determined by HPLC-UV-DAD[6]. Antioxidant activity was measured by radical scavenging activity using DPPH (2,2-difenil-1-picrilhidrazil) radical[7], antimicrobial activity followed the CLSI M7-A6 document[8], and antidepressant- like activity of acute administration were done using tail suspension test (TST)[9] in mice (URI-FW Research Ethical Committee protocol 004-2015). Different groups of mice was orally treated with *V. aschei* (10, 25 and 50 mg/kg, p.o.), fluoxetine (positive control, 30 mg/kg) and vehicle (saline with polissorbate 2%) one hour before the TST. Results show that phenolic content was 135,6 ± 3,56 mg galic acid Equivalent/g. Flavonoids content was 32,3 ± 0,69 µg Rutin Equivalent/g. Results to CE_{50} in the antioxidant activity test was 25,15 ± 1,86 µg/mL. Antimicrobial test shown minimum bactericidal concentration against *S. epidermidis* (125 µg/mL) and *B. cereus* (31,25 µg/mL). The main phenolics compounds identified by HPLC-UV-DAD were chlorogenic acid (16,84 ± 0,09 mg/g dried weight) and rutin (12,13 ± 0,2 mg/g dried weight). Acute oral administration of *V. aschei* in mice at 10, 25 and 50 mg/kg doses was able to reduce the immobility time in TST when compared to the control group (vehicle) and no differences were observed when compared to the positive control fluoxetine (30 mg/kg). In conclusion, *V. ashei* demonstrated antioxidant, antimicrobial and antidepressant-like activity, that can be explained by the phenolics constitution.

References:

[1] Spagolla, L.C., Santos, M.M., Passos, L.M.L., and Aguiar, C.L. 2009. Extração alcoólica de fenólicos e flavonoides totais de mirtilo-Rabbiteye (Vaccinium ashei) e sua atividade antioxidante. Rev. Ciênc. Farm. Básica Apl. 30(2): 59-64.
[2] Naczk, M., Grant, S., Zadernowski, R., and Barre, E. 2006. Protein precipitating capacity of phenolics of wild blueberry leaves and fruits. Food Chemistry, 96: 640–647.
[3] Gurjar, M.S., Ali, S., Akhtar, M., and Singh, K.S. 2012. Efficacy of plant extracts in plant disease management. Agricultural Sciences. 3: 425-433.
[4] Deng, Y., Yang, G., yue, J., Qian, B., Lui, Z., Wang, D., Zhong, Y., and Zhao, Y. 2014. Influences of ripening stages and extracting solvents on the polyphenolic compounds, antimicrobial and antioxidant activities of blueberry leaf extracts. Food Control. 38: 184-191.
[5] Araruna, M.K.A, Santos, K.K.A., Da Costa, J.G.M., Coutinho, H.D.M., Boligon, A.A., Stefanello, S.T., Athayde, M.L., Saraiva, R.A., Da Rocha, J.B.T., Kerntopf, M.R., and De Menezes, I.R.A. 2013. Phenolic composition and in vitro activity of the Brazilian fruit tree *Caryocar coriaceum* Wittm. European Journal of Integrative Medicine. 5: 178–183.
[6] Boligon, A.A., Pereira, R.P., Feltrin, C.A., Machado, M.M., Janovik, V., Rocha, J.B.T., and Athayde, M.L. 2009. Antioxidant activities of flavonol derivatives from the leaves and stem bark of *Scutia buxifolia* Reiss. Bioresource Technology 100: 6592–6598.
[7] Choi, C.W., Kim, S.C., Hwang, S.S., Choi, B.K., Ahn, H.J., Lee, M.Y., Park, S.H., Kim, S.K. 2002. Antioxidant activity and free radical scavenging capacity between Korean medicinal plants and flavonoids by assay-guided comparison. Plant Sci. 63: 1161–1168.
[8] CLSI - Clinical and Laboratory Standards Institute. 2002. Reference Method for Broth Dilution Antifungal Susceptibility Testing of Yeasts, Approved Standard, 2nd ed., Document M27-A2, CLSI: Pennsylvania.
[9] Steru, L., Chermat, R., Thierry, B. and Simon, P. 1985. The tail suspension test: a new method for screening antidepressants in mice. Psychopharmacology (Berl). 85: 367–70.