
ImuPre® is an alcoholic-aqueous extract of seven different herbal drugs: Radix Althaeae, Flores Chamaomillae, Herba Equiseti, Folia Juglandis, Herba Millefolii, Cortex Quercus, and Herba Taraxaci. It is used for the treatment of recurrent infections of the respiratory tract, especially tonsillitis. The aim of the study was the assessment of the influence of the herbal extract combination ImuPre® compared to selected single herbal extracts on its anti-inflammatory activity in vitro. Therefore pharmacological effects of ImuPre® and its herbal components on arachidonic acid metabolism were investigated. The anti-inflammatory activity was measured by inhibition of prostanoid E2 (PGE2) and leukotriene B4 (LTB4), respectively. This study compares different anti-inflammatory pharmacological effects of the herbal extract combination ImuPre® where there is an increase or decrease of enzyme inhibition caused by additional synergistic effects as a result of a multiple extract preparation. References: 1. Reininger, E. et al. (2006) Phytomedicine 13: 164 – 169. 2. Adams, M. et al. (2004) Planta Med. 70: 904 – 908.

Activities of membrane ABC-transporters and other detoxifying enzymes play an important role in the bioavailability of drugs and control the success or failure of cancer chemotherapy. A synergistic interaction between the increased activity of efflux pumps, such as P-glycoprotein (P-gp/MDRI), the detoxification by phase I enzymes like cytochrome P-450 (CYP3A4), and phase II conjugating enzymes like glutathione S-transferases (GST) has been observed in multidrug resistance to many antinecancer drugs [1 - 3]. We evaluated several TCM plants for their possible interaction with P-gp, CYP3A4, and GST. Fallopia japonica (Hout.) Ronse Decr. var. japonica (F) (Polygonaceae) extract (10 – 100 µg/ml) significantly inhibited the active efflux of Rhod23 in a dose and time dependent manner: P-gp inhibitory activity was 0.2 – 2.77-fold and 1.07 – 4.01-fold of verapamil in Caco-2 and CEM/ADR5000 cell lines, respectively. Moreover, (F) can significantly increase Calcin-AM accumulation in leukaemia cells to 1.9 – 6.36-fold using FACS assay. The cytoxicity of doxorubicin biotransformation by CYP enzymes was decreased from 4.15 to 1.12 µM, and from 33.67 to 4.54 µM, respectively. RT-PCR reveals a significantly down regulation of MDRI in Caco-2 cell lines (P<0.01). 20 – 100 µg/ml (F) inhibited significantly GST and cytochrome P450 enzyme activities in a dose dependent manner. In conclusion, the inhibition of P-gp as well as the effect of metabolizing enzymes could explain the anticarcinogenic effect of Fallopia japonica (Houtt.) Ronse Decr. var. japonica extract. References: 1. Marzen, S. et al. (2007) Cancer Treat Rev 33: 369 – 380. 2. Szakacs, G. et al. (2006) Nat Rev Drug Discov 5: 219 – 234. 3. Meijer, I. et al. (2008) Cancer Treat Rev 34: 505 – 520.

Inhibition of α-amylase activity can reduce the postprandial blood glucose level which can be achieved by drugs and medicinal plants (such as Castanospermum austral or black bean). Tannins in black bean have potential inhibitory effect on α-amylase activity [1]. Tannin is also found in Centella asiatica (L.) Urban. [2]. Therefore, the effect of ethanolic extract from Centella asiatica on α-amylase activity was investigated in vitro. The edible parts of Centella asiatica was extracted by 80% ethanolic solution. The total phenolic compound of sample extract was measured [3]. The α-amylase inhibition assay was applied [4]. To determine the effect of the Centella asiatica extract on the α-amylase activity, 10 to 50 mg/ml of extracts and 10 mg/ml of acarbose (α-amylase inhibitor drug), and active compounds found in Centella asiatica (tannin, rutin, and quercetin) were prepared. The results showed that the extract of Centella asiatica contained total phenolic compound equivalent to 97.45 mg of gallic acid-dry weight. Acarbose and tannin could inhibit α-amylase activity (97.6%), respectively. However, rutin and quercetin did not inhibit α-amylase activity, which was similar to the study of Jo et al. [5]. Moreover, the extract of Centella asiatica had α-amylase inhibitory activity (11.4%) at the final concentration of 30 mg/ml while other concentrations of this extract had no inhibition. Although, the percentage of inhibition by Centella asiatica extract was less than acarbose, Centella asiatica extract could be a benefit candidate for treatment of diabetes mellitus. However, further in vivo studies are needed to be investigated. References: 1. Carmona, A. et al. (1996). Nutr. Biochem. 7:445 – 450. 2. Zheng, C. et al. (2007). Chin Integ Med 5:348 – 351. 3. Palam, N. et al. (2003) Food Chem. 105:204 – 214.