Screening of Chinese Medicinal Plants for Inhibition of COX-2 Gene Expression

N. Otto, S. Gussenleitner, R. Bauer

Institute of Pharmaceutical Sciences, Department of Pharmacognosy, University of Graz, Universitätsplatz 4, 8010 Graz, Austria

E-mails: nadine.otto@uni-graz.at (N. Otto), rudolf.bauer@uni-graz.at (R. Bauer)


Herbal drugs used in Traditional Chinese Medicine (TCM) for anti-inflammatory purposes have been examined regarding their impact on cyclooxygenase-2 (COX-2) in an in vitro COX-2 gene expression assay. LPS stimulated THP-1 cells were incubated with herbal extracts (final concentration 20 µg/ml) and dexamethasone as positive control. Relative quantification of COX-2 mRNA was performed by using real-time PCR and comparative Ct method [1]. Considerable inhibitory effects on COX-2 gene expression could be observed for lipophilic extracts of Notopterygium incisum (n-hexane 60% inhibition, dichloromethane 52%), Erythrina variegata (n-hexane, DCM, MeOH: 47%, 55% and 50% inhibition, respectively), Epimedium sagittatum (DCM 60% inhibition), Commiphora myrrha (n-hexane 60% inhibition) and Rubia cordifolia (n-hexane 52% inhibition), as well as for an aqueous extract of Achyranthes bidentata (54% inhibition). Some polar herbal extracts exhibited an adverse effect on the expression of the investigated gene and increased the level of COX-2 mRNA. The demonstrated inhibitory action on COX-2 gene expression of the mentioned TCM drugs may contribute to their anti-inflammatory activities and support further investigation of the active principles or compounds.