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

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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.

- [1] Livak KJ, Schmittgen TD. Analysis of relative gene expression data using real-time quantitative PCR and the $2^{-\Delta\Delta C_T}$ method. *Methods*. 2001; 25: 402–408. doi:10.1006/meth.2001.1262