The aim of this study was to explore the acetylcholinesterase (AChE) inhibition of several Icelandic medicinal herbs. Ethanolic extracts of *Angelica archangelica* seeds and the aerial parts of *Geranium sylvaticum* proved effective, with IC$_{50}$ values of 2.20 mg/ml and 3.56 mg/ml, respectively. The activity of imperatorin and xanthotoxin from *A. archangelica* was measured. Xanthotoxin proved much more potent than imperatorin, with an IC$_{50}$ value of 155 $\mu$g/ml (0.72 mm) but that for imperatorin was above 274 $\mu$g/ml (1.01 mm). However, furanocoumarins seem to have a minor part in the total activity of this extract. Synergistic interaction was observed between the extracts of *A. archangelica* and *G. sylvaticum*. Several medicinal herbs (*Achillea millefolium*, *Filipendula ulmaria*, *Thymus praecox* and *Matricaria maritima*) did not show AChE inhibitory activity.

**Key words:** Acetylcholinesterase, *Angelica archangelica*, *Geranium sylvaticum*