The vasodilating effect of a Hintonia latiflora extract with antidiabetic action.

In the present study, it is shown for the first time that an extract of Hintonia latiflora (HLE) which is used as an antidiabetic herbal medicine, is not only able to decrease blood glucose concentration but additionally exerts a vasodilating effect. Accordingly, this extract might have a positive influence on diabetes-associated dysfunction of blood vessels. The vasodilating effect was demonstrated in vitro in aortic rings of guinea pigs as well as in vivo in rabbits. Aortic rings pre-contracted with noradrenaline (NA) could completely be relaxed by HLE (EC50: 51.98 mg/l). In contrast, potassium-induced contractions were not diminished by HLE. Therefore, it can be suggested that the vasodilating effect of HLE is primarily the result of an inhibition of G protein-induced increase in intracellular calcium and not of a blockade of voltage-operated L-type calcium channels. The neoflavonoid coutareagenin (COU), a constituent of HLE which in part is responsible for the blood glucose-lowering effect of HLE, also relaxed NA-induced contractions of aortic rings (EC50: 32.55 mg/l) and only weakly inhibited potassium-induced contractions. Experiments in aortic rat cells revealed that calcium transients evoked by vasopressin were suppressed by 60 mg/l COU supporting the idea of an inhibition of G protein-induced intracellular calcium release by a constituent of HLE. To study the effect of HLE on vascular
tone under in vivo conditions, ultrasound measurements were carried out in conscious rabbits which received a single oral dose of HLE. Under the influence of HLE, a vasodilation combined with a lowering of blood flow velocity could be observed in the abdominal aorta and the common carotid artery. Additionally, a decrease in blood glucose concentration in the HLE group occurred. The combination of a blood glucose-lowering with a vasodilating effect may be helpful for reducing angiopathies, typical long-term complications in patients with diabetes mellitus.