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Titel des Beitrags: Tetra-acetylagasterone a new constituent of Vitex cienkowskii with vasorelaxant activity.
Abstract: Tetra-acetylagasterone C (TAAC) was found to be one of the naturally occurring compounds of the Cameroonian medicinal plant Vitex cienkowskii which is responsible for a vasorelaxant activity of an extract of this plant. The evaluation of the underlying mechanisms for the relaxing effect of TAAC was determined using aortic rings of rats and mice. TAAC produced a concentration-dependent relaxation in rat artery rings pre-contracted with 1?M noradrenaline (IC50: 8.40?M) or 60mM KCl (IC50: 36.30?M). The nitric oxide synthase inhibitor l-NAME (100?M) and the soluble guanylate cyclase inhibitor ODQ (10?M) significantly attenuated the vasodilatory effect of TAAC. TAAC also exerted a relaxing effect in aorta of wild-type mice (cGKI(+/+); IC50=13.04?M) but a weaker effect in aorta of mice lacking cGMP-dependent protein kinase I (cGKI(-/-); IC50=36.12?M). The involvement of calcium channels was studied in rings pre-incubated in calcium-free buffer and primed with 1?M noradrenaline prior to addition of calcium to elicit contraction. TAAC (100?M) completely inhibited the resulting calcium-induced vasoconstriction. The same concentration of TAAC showed a stronger effect on the tonic than on the phasic component of noradrenaline-induced contraction.
This study shows that TAAC, a newly detected constituent of Vitex cienkowskii contributes to the relaxing effect of an extract of the plant. The effect is partially mediated by the involvement of the NO/cGMP pathway of the smooth muscle but additionally inhibition of calcium influx into the cell may play a role.