Vasodilator effect of the extracts and some coumarins from the stem bark of Mammea africana (Guttiferae).

CH(2)Cl(2) fraction obtained from the stem bark of Mammea africana inhibited noradrenaline (NA) or KCl-induced contraction in isolated guinea pig and rat aorta. The vasorelaxant potency of the CH(2)Cl(2) fraction of Mammea africana was diminished by a pre-treatment with Nitro-l-arginine methyl ester (l-NAME), an inhibitor of NO synthase, which was however not affected by indomethacin pre-treatment. These findings indicated that the vasorelaxant effect of Mammea africana may be partially endothelium dependent, mediated by nitric oxide and that vasoactive prostanoids might not be contributing to the vasorelaxation effect. Three bioactive compounds were isolated from this CH(2)Cl(2) fraction and identified as 4-n-propylcoumarins (1) (mammea B/BB), 4-phenylcoumarins (2) (mammea A/AA or mammeisin) and (B/BA) (3) and might involved in the vasorelaxant effect of the extract. The mechanisms of the vasorelaxant effect might therefore be multiple, including endothelium dependence and the mechanisms, which interfere with the liberation of Ca(2+) into the muscle cell.