



Chemical composition and hypotensive effects of essential oil of *Monodora myristica*

Gaertn

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ABSTRACT

Introduction and objective: *Monodora myristica* Gaertn (Annonaceae) is a perennial tree growing in the tropical rainforest from Liberia to Angola. It is one of the heavily exploited wild plants for food and medicinal products. In Central African Republic the seeds of the plant are used as condiment and drug in the treatment of headache and hypertension. The present study investigated essential oil composition in the seeds with the aim of evaluating their antihypertensive activity.

Methodology and results: The fruit seeds of *Monodora myristica* were collected in September 2006 from the forest of Lobaye (130km near the city of Bangui). 500g of seeds were reduced in powder and hydrodistilled for 4h using a Clevenger-type apparatus. The oil was dried after decantation over anhydrous sodium sulphate. The oil was studied by capillary gas chromatography. Effects of the essential oils on the cardiovascular system were studied by recording the frequency of the isolated frog heart contractions and by recording arterial blood pressure variations of guinea pig. Quantitative assessment of antihypertensive activity was conducted in October 2006. Statistical significance was set at $p < 0.05$ (Student's t-test). The oil yield from the seeds was 1.2% (w/w). The main components of oil were monoterpenoids (93.2%) out of which 77.4% are monoterpene hydrocarbons and some sesquiterpenoids (5.8%). The major constituents were α -phellandrene (34.4%) and p-cymene (22.2%). At the dose of 40, 80, 120 $\mu\text{l.kg}^{-1}$ the essential oil induced a hypotensive effect on the blood pressure and at the dose of 0.01-0.05% it significantly reduced the cardiac contractions of the isolated heart. At 0.06% essential oil totally stopped the cardiac contractions.

Conclusion and potential application of Findings: The results show that essential oils from *M. myristica* have a hypotensive effect on blood pressure and can significantly reduce the cardiac contractions of isolated heart. These effects indicate that these essential oils could be exploited as a potential natural anti hypertensive agents.