

## GARLIC – A CURE-ALL FOR CARDIOVASCULAR DISEASES?

### Summary

Garlic is a plant commonly known from centuries owing to its numerous healing properties. In antiquity, garlic has been used for headaches, bites, and heart diseases. It is a plant of the Liliaceae family. Daily intake should oscillate about 4 grams. Excessive garlic consumption leads to side effects such as abdominal pains. However, garlic exerts many positive healing effects, for instance in the cardiovascular system: decrease of cholesterol level and blood pressure, and inhibits the formation of blood platelet aggregates. In addition, garlic has antibacterial, antiviral and antifungal properties. A large number of sulfur containing compounds present in garlic is held responsible for its biochemical functions. The vast majority of them contains an allyl group ( $-C_3H_5$ ). Among the major sulfur-containing compounds can be distinguished: allin, allicin, allyl-metane-thiosulfinian, diallyl disulfide, diallyl

trisulfide, allyl trisulfide, s-allyl mercaptocysteine, ajoen, S-allyl cysteine. Garlic is therefore the natural and rich source of hydrogen sulfide ( $H_2S$ ). Recent studies show that many medicinal applications of garlic come from  $H_2S$  derived from allicin and its derivatives, diallyl disulfide and diallyl trisulfide. Furthermore, substrates for the production of  $H_2S$  are various derivatives of cysteine. Hydrogen sulfide takes part in a number of cellular signal transduction pathways. It exerts vasodilation action, protects cells from oxidative stress, inhibits platelet aggregation and adhesion to the adhesive proteins. In the cardiovascular system, garlic has anti-atherosclerosis and anti-oxidant properties. It influences also production of nitric oxide and protects from lipid disorders. Present studies suggests that long-term administration of garlic reduces the risk of cardiovascular diseases.