

ABSTRACT

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Title of Thesis **Medicinal Plants Used in the Treatment of Cardiovascular Disorders in the Czech Republic - Overview and Consumption Analysis in Years 2015 - 2019.**

Medicinal plants still hold their strong position in the therapy of various human diseases, even in the modern era. Seven medicinal plants long known for their use in the treatment of cardiovascular disorders were chosen for this thesis, namely *Allium sativum* L. (garlic), *Crataegus* spp. (hawthorn), *Digitalis* spp. (foxglove), *Leonurus cardiaca* L. (motherwort), *Olea europaea* L. (olive), *Nigella sativa* L. (black cumin), and *Viscum album* L. (European mistletoe). Their beneficial effects on the cardiovascular system (antioxidant, cardioprotective, vasorelaxant, antiatherosclerotic, antihypertensive, and lipid-lowering actions) were reviewed with an emphasis on information concerning humans. When possible, the mechanism explanation, results of clinical trials, and established dosage range for the respective fields of action are presented.

The consumption analysis of the preparations containing the abovementioned medicinal plants was conducted with a total number of 33 over the counter herbal preparations and 2 prescription-restricted medicinal products. The products contain either the medicinal plant itself, its extract or active compound(s), and only those available on the Czech Republic pharmaceutical market were chosen for the consumption analysis. The years 2015 - 2019 were established as the reporting time period.

Data collected from participating pharmacies was categorized as big city (included pharmacies in cities with more than 50 thousand of inhabitants), small town (included pharmacies in towns under 50 thousand of inhabitants), and e-shop (pharmacies with home delivery regardless of the population size).

The majority of herbal preparations were represented by garlic herbal preparations, both in the number of the evaluated products and the consumption rate. High consumption rates were also observed for hawthorn and mistletoe preparations. The consumption of other medicinal plants preparations (motherwort, olive leaf, and black cumin) were remarkably lower than that of the aforementioned medicinal plants. The consumption of garlic and hawthorn preparations showed a more or less stable trend with no significant fluctuations during the evaluated time period. Mistletoe and motherwort preparations exerted an increasing consumption trend, while olive leaf and black cumin preparations exhibited a decreasing consumption trend during the reporting time period.

The main issue with the OTCs is the lack of medicinal products among them. Only two herbal teas are registered with SUKL, the remaining 31 preparations are categorized as food supplements. On the other hand, several of the food supplements were standardized for a certain amount of the active compounds and according to the available literature, some of these supplements may have a positive influence on human cardiovascular health.

The prescription-restricted medicinal preparations were represented by different-strength digoxin tablets. While digoxin consumption during the reporting time period exerted a remarkable decreasing trend with the exception of 2018 in big city pharmacies, small town pharmacies exhibited a slower onset of the reduction in digoxin consumption and an increase in digoxin consumption in 2018. These differences were likely the consequence of two different impacts: the decrease in digoxin use in the heart failure treatment according to the newest guidelines that are applied more rapidly in big cities, and the outage of digoxin supplementation in 2018 due to the operational reasons of the producer.