

**HYPOLIPIDEMIC ACTIVITY AND HYPOCHOLESTEROLEMIC ACTIVITY OF
MEDICINAL PLANTS: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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Hyperlipidemia is known as elevated level of lipids including cholesterol and triglycerides in the blood. Hypercholesterolemia is elevated cholesterol level in the blood. Numerous medicinal plants used for hyperlipidemia and hypercholesterolemia in traditional medicine systems around the world. Some medicinal plants have been studied for their potential in treating hyperlipidemia and hypercholesterolemia. Yet, the collective effectiveness of these plants was not analyzed up to date. Therefore, this study aims to gather data from existing studies of medicinal plants which were validated for Hypolipidemic activity and Hypocholesterolemic activity. A comprehensive search was conducted in multiple databases, using keywords “Hypolipidemic activity” OR “Hypocholesterolemic activity” AND “Medicinal plants”. Studies published between 2019-2024 were evaluated by two independent reviewers adhering to PRISMA guidelines and assess using Comprehensive Meta Analysis (CMA) software and JASP software. Among the 5208 reported studies, 30 clinical studies were selected according to inclusion criteria. 13 Randomized Clinical Trials (RCT) revealed significant Hypolipidemic and Hypocholesterolemic activity of medicinal plants such as *Trigonella foenum-graecum*, *Allium sativum*, *Mormodica charantia*. The pooled effect size of total RCTs in the reduction of blood lipid levels attributed to medicinal plants is calculated using Cochran Q test and observed a decrease in LDL from 16.35 mg/dL to 14.66 mg/dL. However, high heterogeneity in few studies were detected from the forest plot created using the effect size of the studies. In conclusion this review and meta-analysis confirm the significant Hypolipidemic and Hypocholesterolemic properties of medicinal plants, supporting their integration into alternative medicine for managing dyslipidemia. However, further studies are needed to investigate the synergistic effects of different plant components when used together.

Keywords: Hypolipidemic activity, Hypocholesterolemic activity, Medicinal plants