

ELUCIDATING THE ROLE OF AJMODA (*APIUM GRAVEOLENS* LINN) IN ISCHEMIC HEART DISEASE THROUGH NETWORK PHARMACOLOGY AND MOLECULAR DOCKING ANALYSIS

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ABSTRACT

A substantial amount of research suggests that ajmoda (*Apium graveolens* Linn) possesses anti-oxidant, anti-platelet, hypolipidemic, anti-inflammatory, antihypertensive and cardiotonic properties. These positive characteristics predispose this plant for use as a medicament for cardiovascular diseases such as ischemic heart disease. However, to gain a comprehensive understanding of how the several phyto-constituents found in ajmoda interact to create therapeutic effects on IHD, network pharmacology and molecular docking technology were employed. 38 IHD-intersecting genes and 26 active ajmoda phyto-constituents were listed through data mining and taken up further for network pharmacology analysis. Based on this, we identified four core compounds—apigenin, chrysoeriol, luteolin and quercetin—and three core targets—EGFR, FABP4, and GSK-3 β . Next, we carried out a common-target enrichment analysis. The KEGG enrichment results showed that the primary modulated pathways were PPARA signalling, PI3K-AKT signalling, and EGFR tyrosine kinase inhibitor resistance. The molecular docking analysis revealed that four core compounds from ajmoda, namely quercetin, luteolin, apigenin and chrysoeriol, showed good interaction with the active sites of core targets EGFR, GSK3B, and FABP4, exhibiting good docking scores. This study uncovers the molecular and pharmacological mechanisms of ajmoda against ischemic heart disease. Furthermore, the research offers a theoretical foundation for additional investigation into ajmoda's pharmacological targets and mechanisms.