

# Ayurveda dietary and herbal interventions on gut microbiome modulation in metabolic disorders: A systematic review

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The human gut microbiome has a significant impact on regulation of metabolism and linked to the pathogenesis of metabolic disorders such as obesity, Diabetes mellitus and dyslipidemia. As per the Ayurvedic principles, dietary and herbal interventions on gut microbiota have the potential to promote health and well-being. The increasing prevalence of metabolic disorders has emerged as a major challenge for healthcare systems worldwide. The aim of the study was to systematically evaluate the literature on Ayurvedic dietary and herbal approaches on gut microbiome modulation in metabolic disorders. A systematic search of online databases, PubMed, Google Scholar and ScienceDirect identified 1093 articles. Following PRISMA guidelines, title and abstract screening, and full text review were conducted and nine articles were eligible for inclusion. The reviewed studies indicated that herbs such as *Triphala*, *Curcuma longa* L., *Glycyrrhiza glabra* L., *Piper longum* L., *Zingiber officinale* Roscoe and *Piper nigrum* L. had a unique effect in modulating the composition and metabolism of the gut microbiome. These interventions promote gut microbiome homeostasis by enhancing beneficial microbes and inhibiting the growth of pathogenic species. Multiple studies suggest that the gut microbiome contributes in biotransformation of Ayurvedic dietary and herbal compounds and enhance the production of indole derivatives, urolithins and short-chain fatty acids (SCFAs) such as butyrate, acetate and propionate, which are crucial in reducing risk of metabolic disorders. This systematic review provides preliminary evidence for potential of Ayurvedic interventions in gut microbiome modulation in the management of metabolic disorders and emphasizes the necessity of further clinical validation.

**Keywords:** *Gut microbiome, PRISMA, Biotransformation, SCFA*