

## REVIEW ARTICLE

# THERAPEUTIC APPLICATIONS AND SAFETY OF FERULIC ACID: AN UPDATED REVIEW

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### ABSTRACT

Numerous pharmacological characteristics, such as antioxidant, anti-inflammatory, antibacterial, antidiabetic, anticancer, cholesterol lowering, wound healing, cardioprotective and neuroprotective actions, are displayed by ferulic acid (FA), a crucial hydroxycinnamic acid found in plant cell walls. Through mechanisms like immunological modulation, viral replication suppression, and oxidative stress reduction, recent studies demonstrate its antiviral potential. FA boosts antioxidant defenses and inhibits inflammatory pathways to disrupt viral pathogenesis. Despite its mild safety issues, its low bioavailability, fast metabolism and poor water solubility pose problems for therapeutic use. Developments in drug delivery technologies, including nanoparticle-based formulations and bio-improved derivatives, offer intriguing ways to enhance FA's pharmacokinetics. To increase FA's effectiveness, future studies should focus on improving its bioavailability and clinical translation.