# PHARMACOLOGY COVERAGE IN FSTA®

Trusted by researchers, scientists, students and government bodies in over 150 countries across the globe, FSTA is the definitive way to search over fifty years of historic and emerging research in the sciences of food and health. Covering a wide range of interdisciplinary material, FSTA includes a wealth of international pharmacology content including:

### **Bioactive compounds from edible resources**

- Identification and profiling of bioactive compounds, such as flavonoids, polyphenols, and carotenoids, in edible plants, fungi and other organisms
- Ethnobotanical studies on the use of plants for food and medicine across different cultures
- Extraction of bioactive compounds from edible plants, fungi and other organisms

## Health effects of foods and food constituents

- Biological activity and health effects of foods and bioactive compounds derived from foods
- Pharmacokinetics and pharmacodynamics
- Toxicology and safety of compounds from edible resources
- Protective effects of foods and food constituents against toxins
- Analysis of bioactive compounds for their pharmacological activity and potential health benefits

### **Food-drug interactions**

- Effects of foods, beverages and their constituents upon the absorption, metabolism and/or excretion of medicines
- Influence of foods and their components upon drug efficacy and side effects

## Functional and nutraceutical foods and beverages

- Development of functional and nutraceutical foods and beverages
- Applications of edible and medicinal plants, fungi, and other organisms, and bioactive compounds derived from them, in functional/nutraceutical foods and beverages
- Formulation of medical foods for specific dietary management of diseases
- Delivery systems for bioactive compounds, e.g. nanoencapsulation
- Health claims for functional and nutraceutical foods and beverages

## USING FSTA FOR YOUR PHARMACOLOGY RESEARCH

### **Example Search Questions:**

- How might raspberry be used in the treatment of type-2 diabetes? (Sample record on following page)
- How could the use of delivery systems improve the bioavailability of curcumin?
- What biological activity is shown by Perilla frutescens?
- What are the mechanisms of action of stilbenes in cancer cells?

## **SOURCE EXAMPLES**

Pharmacology content is drawn from a wide variety of sources including journals, patents, books, reports and more. Here are just some of the many pharmacology-focused journals included within FSTA, chosen to illustrate the diversity and breadth of content:

- European Journal of Pharmacology
- Regulatory Toxicology and Pharmacology
- Journal of Food and Drug Analysis
- Pharmacognosy Journal
- Journal of Ethnopharmacology
- Phytomedicine
- Journal of Medicinal Food
- Pharmaceutical Biology
- Biomedicine & Pharmacotherapy

## SAMPLE FSTA RECORD FOCUSED ON PHARMACOLOGY

Study on the Mechanism of Raspberry (Rubi fructus) in Treating Type 2 Diabetes Based on UPLC-Q-Exactive Orbitrap MS, Network Pharmacology, and Experimental Validation.

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	Published: 2025
Source: Phytochemical Analysis; Vol. 36, Issue 3,	
Pages 744-758	Document type: Journal Article

**Abstract:** Aim: The aim of this study is to analyze the chemical composition of raspberry using liquid chromatography-mass spectrometry (LC-MS) technology, predict the potential effects of raspberry in treating type 2 diabetes through network pharmacology, and conduct preliminary validation through in vitro experiments.

Methods: A Waters CORTECS C18 column (3.0 mm × 100 mm, 2.7 µm) was used; mobile phase A consisted of 0.1% formic acid in water and mobile phase B consisted of 0.1% formic acid in acetonitrile. Gradient elution was performed with full-scan mode in both positive and negative ion modes, covering a mass range of m/z 100-1500. The chemical components of raspberry were analyzed and identified based on secondary spectra from databases and relevant literature. The disease targets related to type 2 diabetes were searched, and protein-protein interaction network analysis as well as gene ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analysis were conducted on the intersecting targets of the active components of raspberry and the disease. HepG2 cells were used for experimental validation, with high glucose-induced insulin resistance models established. The CCK-8 method was employed to assess the effects of raspberry on cell proliferation, while Western blotting was used to measure the expression of proteins related to the AGE/RAGE signaling pathway.

Results: A total of 47 components were identified, including 10 organic acids, 15 flavonoids, 12 phenols, 2 alkaloids, 4 terpenoids, 1 miscellaneous compound, 1 stilbene, 1 steroid and its derivatives, and 1 diterpenoid. Through database screening, seven active components were identified: kaempferol, epicatechin, ellagic acid, crocetin, stigmasterol, fisetin, and isorhamnetin. KEGG and GO results indicated that the therapeutic effects of raspberry on type 2 diabetes may be related to the advanced glycation end product (AGE)- receptor for advanced glycation end product (RAGE) signaling pathway. Establishment of an insulin resistance model in HepG2 cells demonstrated that, compared to the control group, the raspberry treatment group upregulated p53 protein expression while downregulating the expression of RAGE, Akt1, and Caspase-3 proteins. Conclusion: This study preliminarily elucidates that the therapeutic effects of raspberry in treating type 2 diabetes may be mediated through the inhibition of the AGE-RAGE signaling pathway, providing important references for the study of the pharmacological basis and clinical application of raspberry. © *2024 John Wiley & Sons Ltd.* 

**Keywords:** RASPBERRIES; TYPE 2 DIABETES; UPLC; PHARMACOLOGICAL PROPERTIES; LC-MS; FORMIC ACID; BIOMARKERS; WESTERN BLOTTING; ANTIPROLIFERATIVE ACTIVITY; PROTEIN EXPRESSION; PHENOLS; FLAVONOIDS; ALKALOIDS; TERPENOIDS; STILBENES; STIGMASTEROL; FISETIN; CROCETIN; ELLAGIC ACID; EPICATECHIN; KAEMPFEROL; DITERPENOIDS; ISORHAMNETIN; INSULIN RESISTANCE; CELL LINES

## **FURTHER INFORMATION**

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If you would like more detailed information or to set up a training session, please contact Angela Ball at **a.ball@ifis.org** (existing customers) or Carol Durham at **c.durham@ifis.org** (non-customers).

