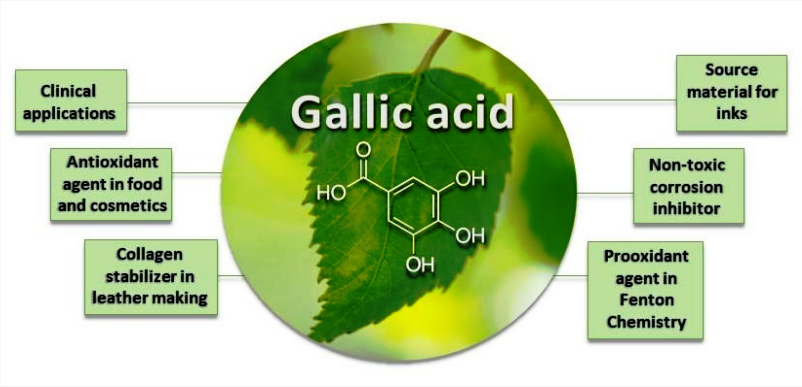
Gallic Acid Market Regional Outlook, Opportunity, Assessment, Forecast till 2033

Gallic Acid Market Size, Share, Competitive Landscape and Trend Analysis Report, by Grade, by Application, by End-Use Industry



Gallic Acid Market

PORTLAND, OR, UNITED STATES, December 17, 2024 / EINPresswire.com/ -- Gallic acid ($C_7H_6O_5$), also known as 3,4,5-trihydroxybenzoic acid, is a naturally occurring phenolic acid found in many plants, fruits, and natural substances like tea, grapes, berries, and oak bark. It is a secondary plant metabolite that plays a key role in plant defense mechanisms. The global gallic acid market was valued at $81.0 million in 2023, and is projected to reach $137.5 million by 2033, growing at a CAGR of 5.3% from 2024 to 2033.

> Gallic acid is a type of phenolic acid that is found abundantly in various plants such as gallnuts, sumac, tea leaves, and grapes."
>
> *David Correa*

Gallic acid is widely known for its antioxidant, antimicrobial, and anti-inflammatory properties, making it valuable in food, pharmaceuticals, cosmetics, and the dyeing and tanning industries.

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Biological Properties of Gallic Acid
Gallic acid has a wide range of biological activities that make it valuable for therapeutic and commercial use.

Antioxidant: Neutralizes free radicals, reducing oxidative stress and protecting cells from damage.
Anti-inflammatory: Inhibits the production of inflammatory mediators like cytokines and enzymes (e.g., cyclooxygenase, COX).
Antimicrobial: Exhibits antibacterial, antifungal, and antiviral activity, which is useful in food

preservation.
Anti-cancer: Promotes apoptosis (programmed cell death) in cancer cells without harming healthy cells, making it a promising anticancer agent.
Anti-diabetic: Lowers blood sugar levels and prevents oxidative damage caused by high glucose levels.
Neuroprotective: Protects neurons from oxidative stress, potentially useful in neurodegenerative diseases like Alzheimer's and Parkinson's.

Uses and Applications of Gallic Acid
1. Food and Beverages
Antioxidant and Preservative: Used as a food additive (E310) to prevent oxidation and rancidity in fats, oils, and processed foods.
Food Packaging: Added to food packaging materials to extend shelf life by preventing microbial growth and oxidation.
Functional Foods and Supplements: Included in health supplements due to its antioxidant and anti-inflammatory benefits.
Wine Production: Present naturally in wine, especially red wine, where it enhances the wine's taste, aroma, and antioxidant properties.

2. Pharmaceuticals and Medicine
Antioxidant Supplements: Used as a health supplement to combat oxidative stress and promote general well-being.
Anti-Cancer Therapy: Gallic acid induces apoptosis in cancer cells and is being researched as an anti-cancer drug.
Anti-Diabetic Agent: Included in natural remedies and supplements for diabetes management due to its ability to lower blood sugar levels.
Neuroprotection: Used in research for Alzheimer's, Parkinson's, and other neurodegenerative conditions.
Anti-inflammatory and Pain Relief: Incorporated in topical creams and ointments for joint pain, swelling, and inflammation.

3. Cosmetics and Personal Care
Anti-Aging Skincare: Due to its ability to neutralize free radicals, gallic acid is used in anti-aging creams, lotions, and serums.
Skin Lightening: Reduces melanin production, which can lead to a skin-lightening effect.
Anti-Acne Formulations: Its antimicrobial properties help fight acne-causing bacteria, making it useful in acne creams.

4. Dyes, Ink, and Tanning
Tannins Production: Gallic acid is a key component in the production of tannins, which are used

in leather tanning.
Inks and Dyes: Historically used to produce iron gall ink, a permanent ink used in medieval manuscripts and official documents.
Colorants: Used as a natural dye for fabrics and textiles.

5. Industrial Applications
Photographic Chemicals: Used in photographic developers to enhance image clarity.
Corrosion Inhibitor: Coatings made with gallic acid protect metal surfaces from corrosion.
Bio-based Polymers: Incorporated into the production of sustainable, biodegradable polymers.

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