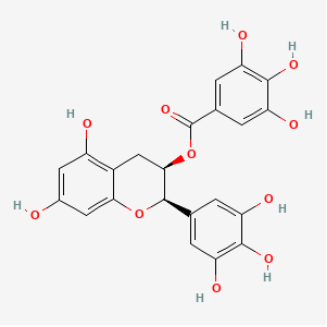
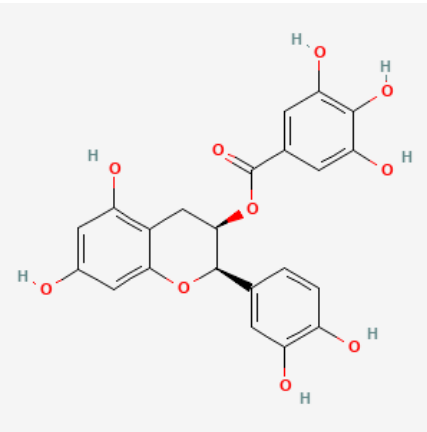
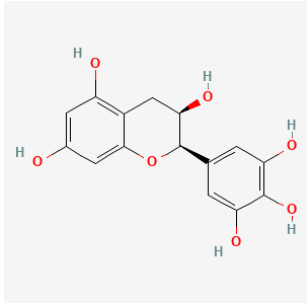
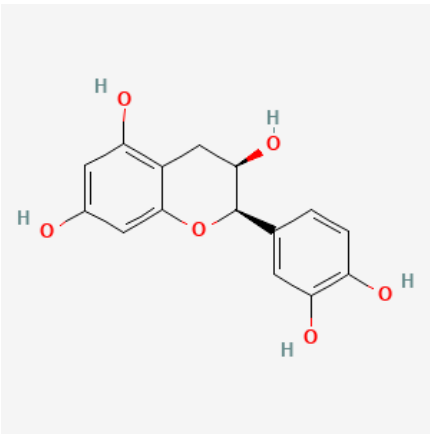
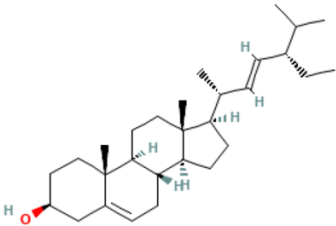
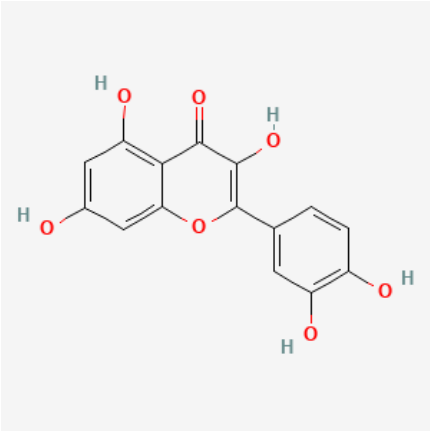
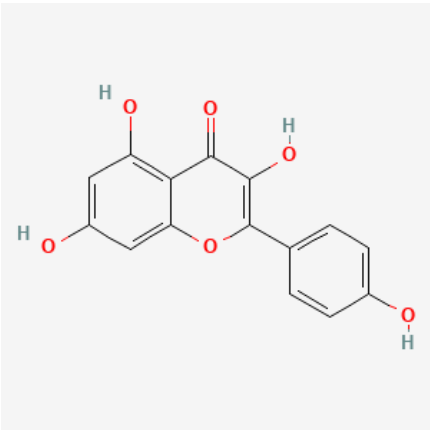
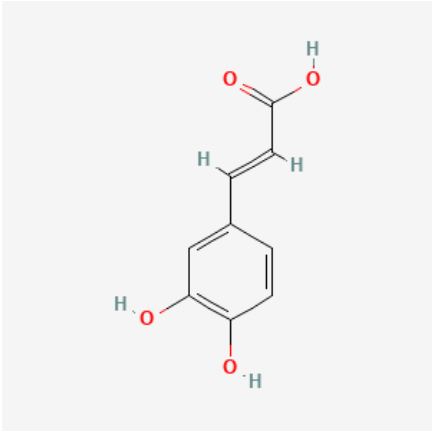
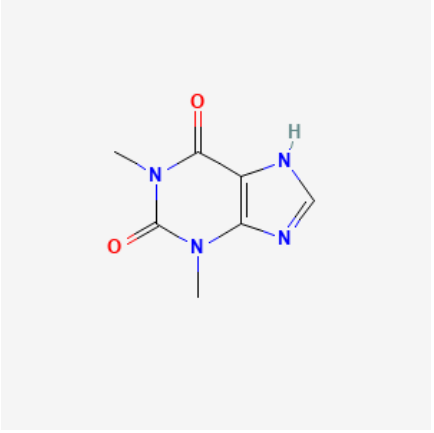
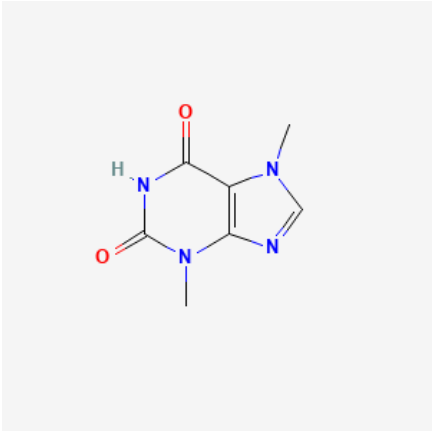
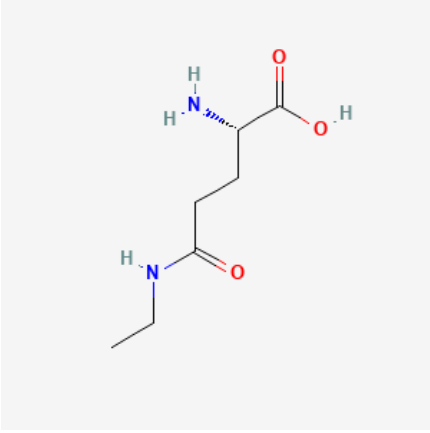


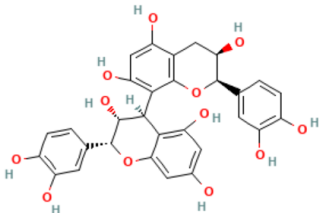
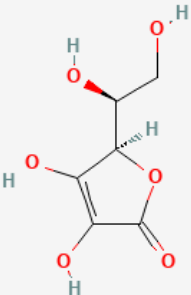
S.NO.	Phytochemical	Structure	Mechanism of action	Reference
1	Epigallocatechin-3-gallate (EGCG)		A powerful antioxidant and anti-cancer agent that inhibits cancer cell proliferation and induces apoptosis	Hu L et al.,2023
2	Epicatechin Gallate (ECG)		Induces apoptosis in cancer cells, and inhibits angiogenesis.	Sánchez-Tena S et al.,2013

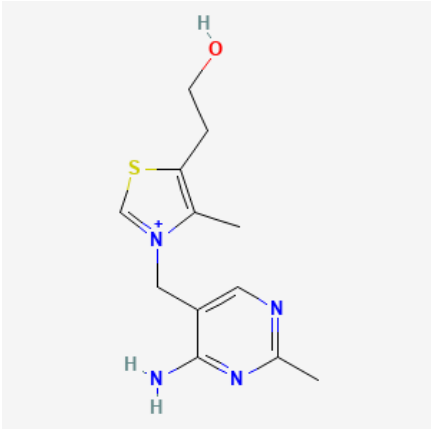
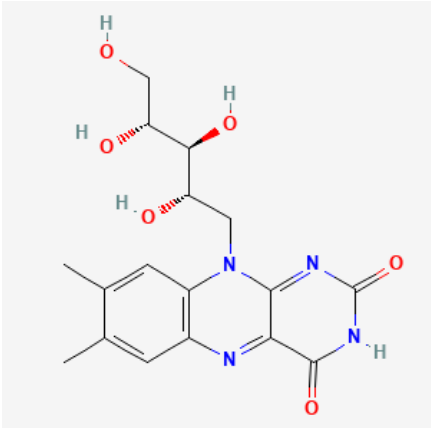
3	Epigallocatechin (EGC)		Antioxidant inhibits cancer cell proliferation.	Vergote D et al.,2002
4	Epicatechin (EC)		EC has an antitumor effect in a murine triple-negative mammary gland tumor model, decreasing tumoral size and volume and increasing survival by 44%	Pérez-Durán J et al.,2023
5	Stigmasterol		Plant metabolite	Duke,1992

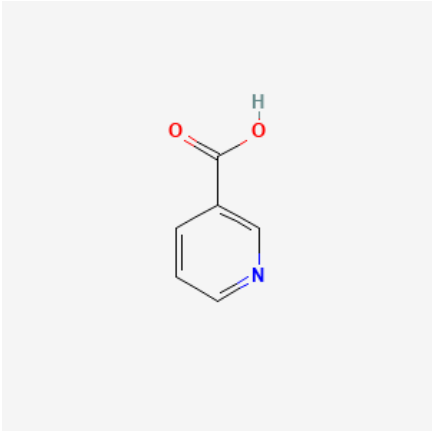
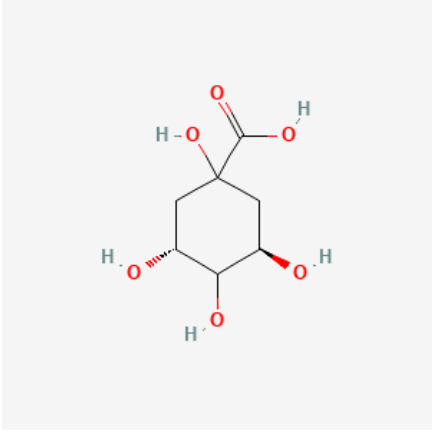
6	Quercetin	 <p>The chemical structure of Quercetin is a flavonoid consisting of a chromone core. It features a hydroxyl group at position 3, a dihydroxyphenyl group at position 4, and a 3,4,5-trihydroxyphenyl group at position 7. The structure is shown with red oxygen atoms and blue hydrogen atoms.</p>	An antioxidant with anti-inflammatory and antihistamine effects.	Murakami A. et al.,2008
7	Kaempferol	 <p>The chemical structure of Kaempferol is a flavonoid consisting of a chromone core. It features a hydroxyl group at position 3, a 4-hydroxyphenyl group at position 4, and a 3,4-dihydroxyphenyl group at position 7. The structure is shown with red oxygen atoms and blue hydrogen atoms.</p>	Known for its anti-cancer and cardioprotective properties.	Luo H. et al.,2010

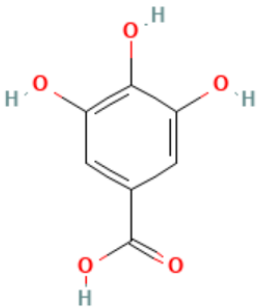
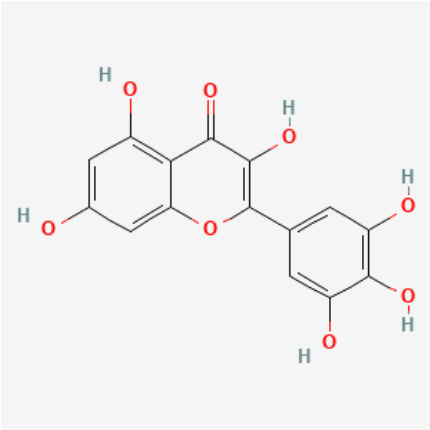
8	Caffeic acid		Through metabolism by caffeine metabolism genotype. Antioxidant and inhibits tumor proliferation	Gregg JR et al.,2023
9	Theophylline		Theophylline down-regulated <i>SRSF3</i> expression and switched <i>p53</i> from alpha into a beta isoform. theophylline induces cellular apoptosis, senescence, and decreased colony formation	Arab L. et al.,2009

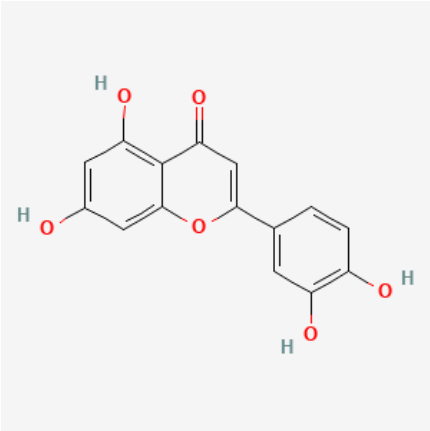
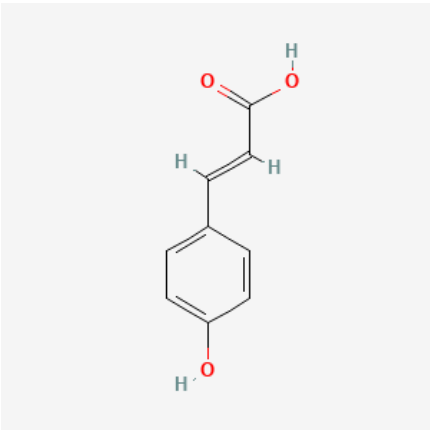
10	Theobromine		Reduced the number of cancerous and precancerous lesions, administration also causes more inhibitory effects on the Ki-67 and Akt/mTOR expression than theanine	Shojaei-Zarghani S et al.,2021
11	L-Theanine		Act as an anticarcinogen through proapoptotic and antiproliferative effects	Fan X et al.,2021

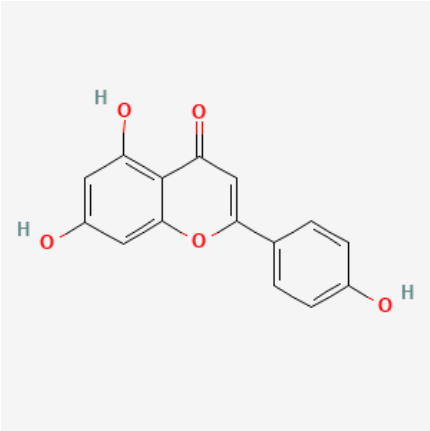
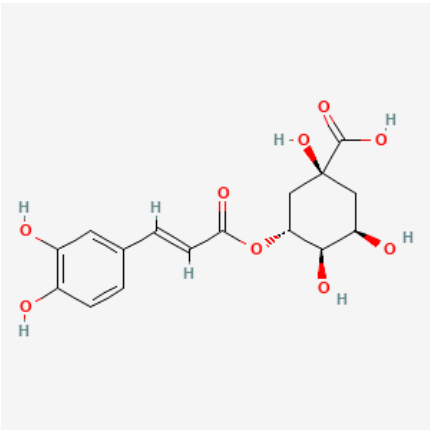
12	Procyanidin B2		It has a role as a metabolite and an antioxidant.	Duke, 1992
13	Vitamin C		Present in green tea but reduced during oxidation. targets many of the mechanisms that cancer cells utilize for their survival and growth	Ngo B et al.,2019

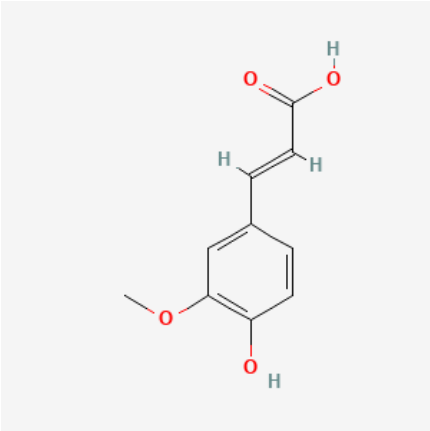
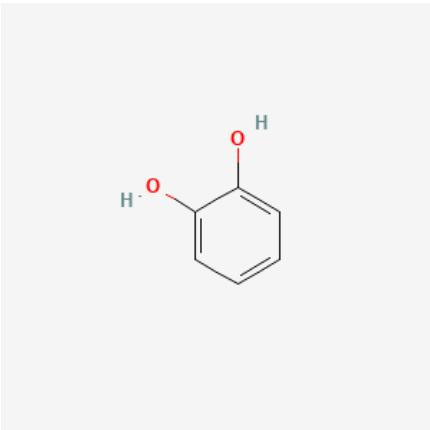
14	B1 (thiamine)		May exhibit some antitumor effects.	Lu'o'ng KV et al.,2013
15	B2 (riboflavin)		Indirect cancer therapeutic agent that functions in metabolic pathways, oxidative stress modulation, and immune system support	Ben S et al.,2018

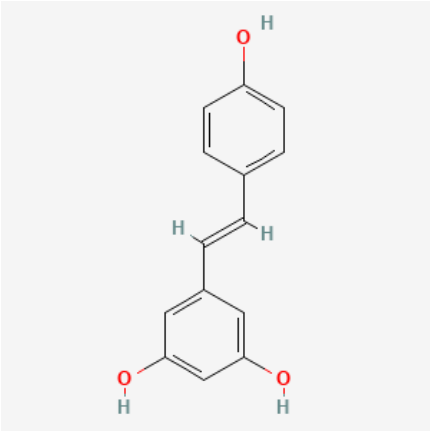
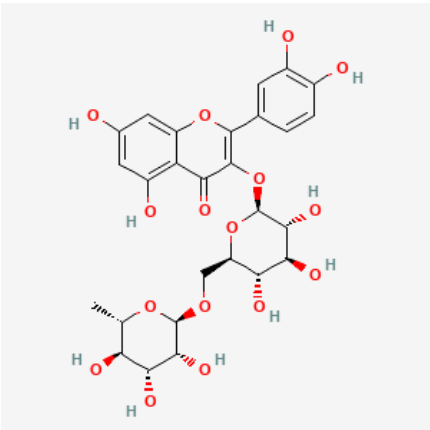
16	B3 (niacin)		Improves mitochondrial metabolism and ameliorates cancer- and chemotherapy-induced cachexia.	Beltrà M et al.,2023
17	Quinic Acid		Including gallic acid, which has antioxidant and antimicrobial properties.	Ahmad S et al.,2023

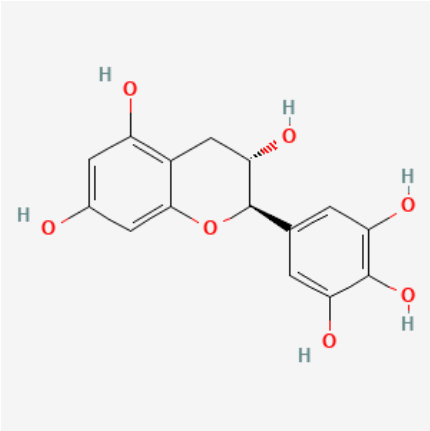
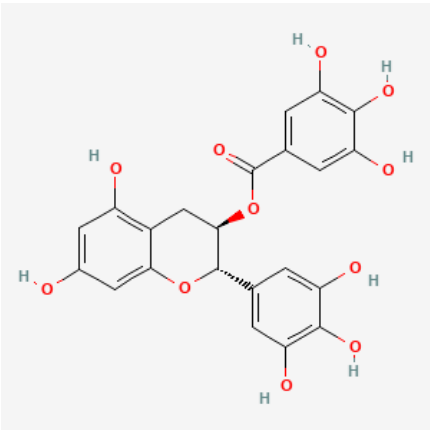
18	Gallic Acid	 <p>The chemical structure of Gallic Acid is shown. It consists of a benzene ring with three hydroxyl groups (-OH) at the 3, 4, and 5 positions and a carboxylic acid group (-COOH) at the 1 position.</p>	Antioxidant properties inhibit tumor cell proliferation	You et al.,2010
19	Myricetin	 <p>The chemical structure of Myricetin is shown. It is a flavonoid compound consisting of a central chromone core. It has a 3,4,5-trihydroxyphenyl group at the 2-position and a 3,4,5-trihydroxyphenyl group at the 3-position.</p>	Induces apoptosis in cancer cells, antioxidant activity	Hyun et al.,2016

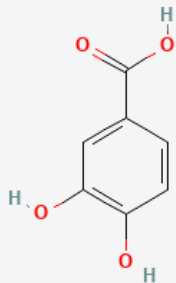
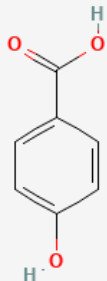
20	Luteolin	 <p>The chemical structure of Luteolin is a flavone. It consists of a central chromone core. The A-ring (left) has a hydroxyl group at position 7. The C-ring (middle) has a carbonyl group at position 4 and a hydroxyl group at position 2. The B-ring (right) is a phenyl ring with hydroxyl groups at positions 3' and 4'.</p>	Induces cancer cell apoptosis, inhibits angiogenesis	Wang, W., et al. 2005
21	P-coumaric acid	 <p>The chemical structure of P-coumaric acid is a hydroxycinnamic acid. It consists of a benzene ring with a hydroxyl group at the para position (position 4). Attached to the ring at position 1 is a propenoic acid side chain, which includes a trans-double bond and a carboxylic acid group.</p>	Inhibits cell proliferation and DNA damage	Wang, L. et al.,2022

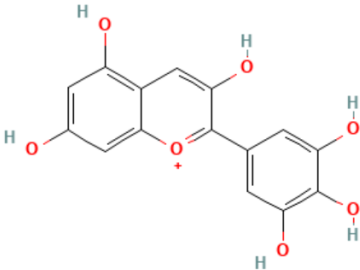
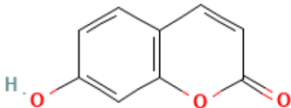
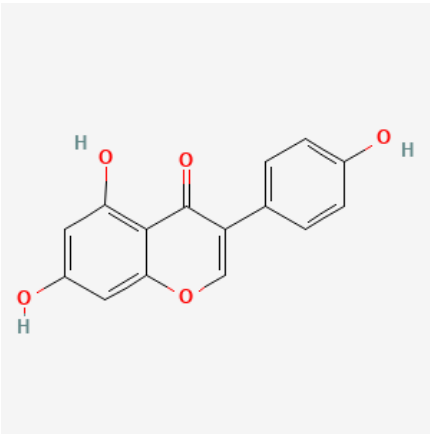
22	Apigenin	 <p>The chemical structure of Apigenin is a flavone. It consists of a central pyrone ring (a six-membered ring with one oxygen and a carbonyl group) fused to a benzene ring on the left and substituted with a 4-hydroxyphenyl group on the right. The left benzene ring has hydroxyl groups at the 5 and 7 positions. The right phenyl ring has a hydroxyl group at the 4 position.</p>	Antioxidant properties, suppresses cancer cell growth	Zhao et al.,2017
23	Chlorogenic acid	 <p>The chemical structure of Chlorogenic acid is an ester. It features a 3,4,5-trihydroxybenzoic acid moiety (a benzene ring with hydroxyl groups at positions 3, 4, and 5, and a carboxylic acid group at position 1) linked via an ester bond to a quinic acid moiety. The quinic acid moiety is a cyclohexane ring with a carboxylic acid group and four hydroxyl groups in a specific stereochemical arrangement.</p>	Antioxidant, inhibits metastasis	Yan,Y. et al.,2020

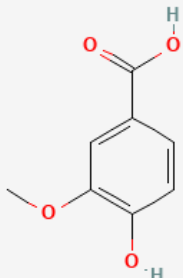
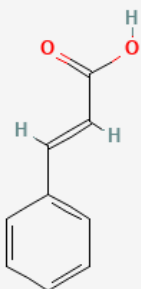
24	Ferulic acid	 <p>The chemical structure of ferulic acid is shown. It consists of a benzene ring with a methoxy group (-OCH₃) at the 3-position and a hydroxyl group (-OH) at the 4-position. A propenoic acid side chain (-CH=CH-COOH) is attached to the 1-position of the ring.</p>	Suppresses oxidative stress and tumor growth	Srinivasan et al.,2007
25	Catechol	 <p>The chemical structure of catechol is shown. It consists of a benzene ring with two hydroxyl groups (-OH) attached at the 1 and 2 positions.</p>	Enhances antioxidant defenses, inhibits cancer cell growth	Zhang et al.,2019

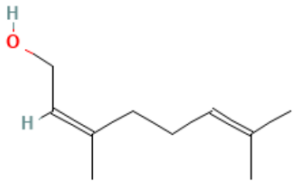
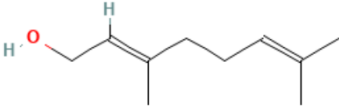
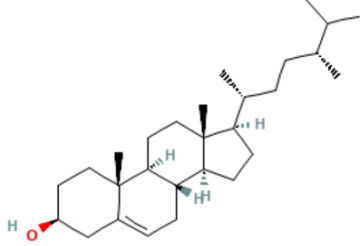
26	Resveratrol	 <p>The chemical structure of Resveratrol is shown. It consists of a stilbenoid core, which is a double bond between two phenyl rings. One phenyl ring is substituted with two hydroxyl groups at the 3 and 5 positions (catechol ring). The other phenyl ring is substituted with a single hydroxyl group at the 4 position (p-phenol ring).</p>	Antioxidant, induces cancer cell apoptosis	Vang et al., 2011
27	Rutin	 <p>The chemical structure of Rutin is shown. It is a flavonoid glycoside. It features a flavan-3-ol core (quercetin) with a rhamnosyl sugar attached to the 3-position and a rutinosyl sugar attached to the 7-position. The structure is highly complex with multiple hydroxyl groups and glycosidic linkages.</p>	Suppresses cancer cell growth and oxidative damage	Ahmed et al., 2019

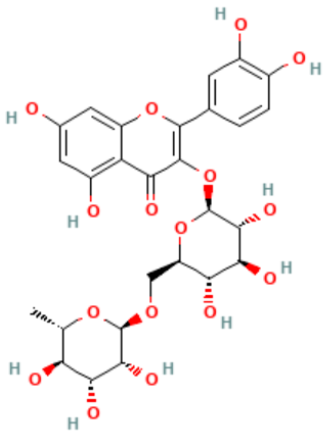
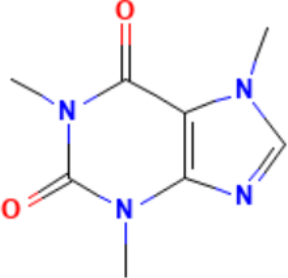
28	Galocatechin		Antioxidant activity, inhibits cancer cell proliferation	Yang et al.,2019
29	Galocatechin gallate (GCG)		Inhibits cancer cell growth and angiogenesis, antioxidant properties	Yang et al.,2019

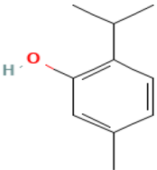
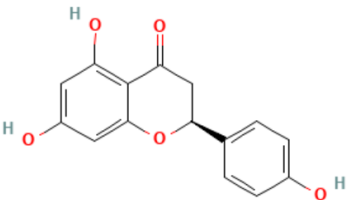
30	3,4-dihydroxybenzoic acid (Protocatechuic acid)		Suppresses tumor growth and acts as an antioxidant.	Lin et al.,2015
31	4-hydroxybenzoic acid		Antioxidant and anti-inflammatory properties and inhibit cancer cell growth.	Lee et al 2014

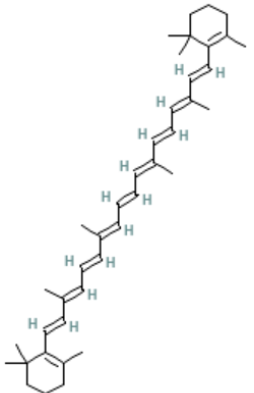
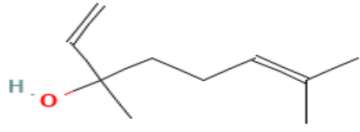
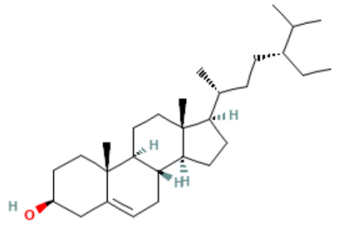
32	Delphinidin		<p>Suppresses cancer cell growth by inducing apoptosis and inhibiting metastasis.</p> <p>It has a role as an antineoplastic agent, a biological pigment and a plant metabolite.</p>	Thomasset et al.,2014
33	Umbelliferone		<p>It has a role as a fluorescent probe, a plant metabolite and a food component.</p>	Duke,1992
34	Genistein (Isoflavones)		<p>Have estrogenic activity and exhibit anticancer properties, particularly in hormone-related cancers</p>	Banerjee et al.,2008

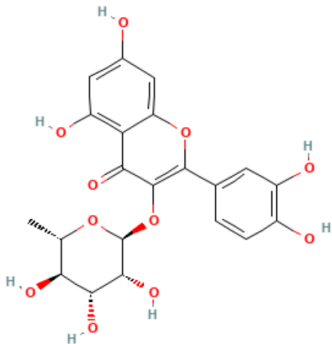
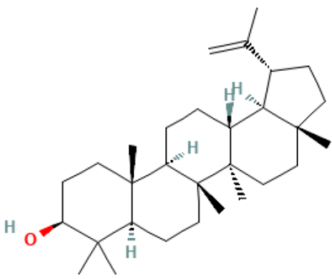
35	Vanillic acid		Antioxidant and anti-inflammatory properties help in inhibiting tumor growth.	Karthikeyan et al.,2016
36	Cinnamic acid		Antitumor activity through inhibition of cancer cell proliferation and induction of apoptosis	Taherian et al.,2019

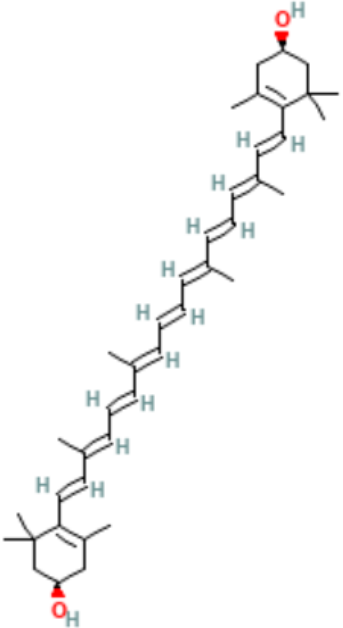
37	Nerol		It has a role as a volatile oil component, a plant metabolite and a fragrance.	Duke,1992
38	Geraniol		It has a role as a fragrance, an allergen, a volatile oil component and a plant metabolite.	Duke, 1992
39	Campesterol			Duke, 1992

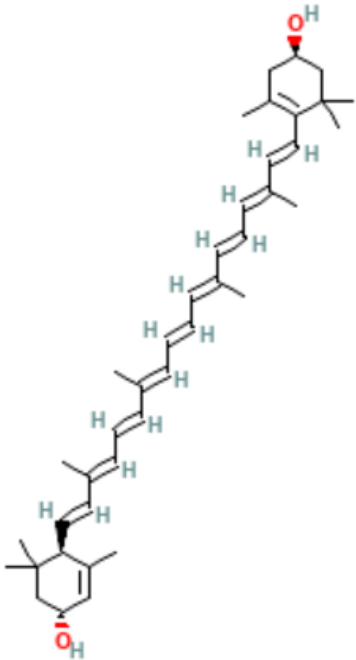
40	Eugenol	 <p>The chemical structure of Eugenol is shown. It consists of a benzene ring with two hydroxyl groups (catechol) at the 1 and 2 positions. At the 4 position, there is an allyl group (-CH2-CH=CH2). The structure is drawn with stereochemistry: the hydroxyl groups are in red, and the allyl group is in black.</p>	<p>It has a role as an allergen, a human blood serum metabolite, a sensitiser, a volatile oil component, a flavouring agent, an EC 1.4.3.4 (monoamine oxidase) inhibitor, a radical scavenger, an antibacterial agent, an antineoplastic agent, an apoptosis inducer, an anaesthetic, an analgesic, a voltage-gated sodium channel blocker, a NF-kappaB inhibitor and an anti-inflammatory agent</p>	Duke, 1992
41	Caffeine	 <p>The chemical structure of Caffeine is shown. It is a purine derivative with two methyl groups on the nitrogen atoms at positions 1 and 3. The structure is drawn with stereochemistry: the nitrogen atoms are in blue, the oxygen atoms are in red, and the methyl groups are in black.</p>	<p>It has a role as a central nervous system stimulant, a psychotropic drug, a diuretic, a food additive, an adjuvant, a plant metabolite, an environmental contaminant, a xenobiotic, a human</p>	Duke,1992

			blood serum metabolite, a mouse metabolite, a geroprotector and a mutagen.	
42	Thymol		It has been used for its antiseptic, antibacterial, and antifungal actions, and was formerly used as a vermifuge.	Duke,1992
43	Naringenin		It has a role as an expectorant and a plant metabolite.	Duke,1992

44	Beta-carotene		Antioxidant a plant metabolite	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
45	Linalool		It has a role as a plant metabolite, a volatile oil component, an antimicrobial agent and a fragrance.	Duke,1992
46	Beta-Sitosterol		It has a role as a sterol methyltransferase inhibitor, an anticholesteremic drug, an antioxidant, and a plant metabolite	Spiller, G. A. 1996

47	Quercitrin		<p>It has a role as an antioxidant, an antileishmanial agent, an EC 1.1.1.184 [carbonyl reductase (NADPH)] inhibitor, an EC 1.1.1.21 (aldehyde reductase) inhibitor, an EC 1.14.18.1 (tyrosinase) inhibitor and a plant metabolite.</p>	Duke,1992
48	Lupeol		<p>It has a role as an anti-inflammatory drug and a plant metabolite.</p>	Duke , 1992

49	Zeaxanthin	 <p>The chemical structure of Zeaxanthin is shown, featuring a long polyene chain with alternating double bonds, flanked by two substituted cyclohexene rings. Each ring has a hydroxyl group (OH) attached, indicated by a red oxygen atom and a white hydrogen atom. The structure is drawn in a zig-zag conformation.</p>	It has a role as a bacterial metabolite, a cofactor and an antioxidant.	Duke,1992
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50	Lutein		Plant metabolite	Duke,1992
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References of Compounds:

1. Hu L, Xu X, Chen X, Qiu S, Li Q, Zhang D, Wang F. Epigallocatechin-3-Gallate Decreases Hypoxia-Inducible Factor-1 in Pancreatic Cancer Cells. *Am J Chin Med.* 2023;51(3):761-777. doi: 10.1142/S0192415X23500362. Epub 2023 Mar 3. PMID: 36867109.
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