

ESU 009– Role of phytochemicals as Lecture 17 nutraceuticals & functional foods





PHYTOCHEMICALS



Phytochemicals



- Phytochemicals could provide health benefits as:
 - + **Substrate** for biochemical reactions
 - + **Cofactors** of enzymatic reactions
 - + **Inhibitors** of enzymatic reactions
 - + **Absorbents** that bind to & eliminate undesirable constituent in the intestine
 - + **Scavengers** of reactive or toxic chemicals

- ✚ **Enhance the absorption** and / or **stability** of essential nutrients
- ✚ **Selective growth factor** for beneficial bacteria
- ✚ **Fermentation substrate** for beneficial bacteria
- ✚ **Selective inhibitors** of deleterious intestinal bacteria

VARIOUS PHYTOCHEMICALS

Phytochemicals	Source	Role
Tocotrienols & tocopherols	Grains	Suppressed the growth of diverse tumors cell lines via initiation of apoptosis and concomitant arrest of cells in the G1 phase of the cell cycle
Carotenoids	Fruits & vegetables	Antioxidants, protects against uterine, prostate, colorectal, lung and digestive tract cancers, and protection to other antioxidants

Limonoids	Citrus fruits	Inhibiting phase I enzymes & inducing phase II detoxification enzymes in liver, provide protection to lung tissue.
Phytosterols	Various plants	Exhibit anti-inflammatory, anti-neoplastic, anti-pyretic & immune- modulating activity, decrease cholesterol.
Phenolic constituents	Various plants, wholegrain	Antioxidants, lowers the risk of CHD, diabetes, hypertension etc.

Flavonoids	Grapes, wines	Action against free radicals, free radicals mediated cellular signaling, inflammation, allergies, platelet aggregation, & hepatotoxins
Catechin & gallic acids	Grapes, berries, cocoa, green tea, acacia spp.	Antioxidants, free radical scavenging ability.
Isoflavonoids	Soybeans	Treating cancers & osteoporosis

Anthocyanidins	Fruits & flowers	Antioxidants & anti-mutagenic properties
Glucosinolates	Cruciferous	Activators of liver, detoxification enzymes, inhibit the neoplastic effect of various carcinogens.
Indoles		Reduces estrogen dependent cancer risk,
Fiber	Various vegetables, fruits,	Protects against colorectal diseases,

FRUITS

FRUITS	BODY BENEFITS
1) Apples	An apple's 3 gm of fibre help you meet your fibre goal of 20g to 30 g daily.High fibre diets can lower high disease risk.
2) Apricots	A good source of beta carotene(which is converted to vit-A by the body) providing the equivalent of 35% of RDA for vit-A
3) Bananas	They are the great source of potassium ,which plays great role in heart and muscles function
4) Cherries	Heart protective anthocyanins are present and also gives colour
5) D	8

VEGETABLES

VEGETABLES	BODY BENEFITS
1)Broccoli	This food is loaded with sulphoraphane ,consisting 72 mg of calcium,78 mg of folic acid and vitamin C
2)Cabbage	The indoles in a cabbage makes it a cancer fighter.
3)Carrots	A stellar source of beta-carotene.one carrot contains twice unit of vit-A.
4)Tomatoes	Technically consider as a fruit loaded with cancer fighting lycopene and a great source of vit-A.

Thank you

Dr. Rahul Thory
School of Bioengineering and Food Technology
Shoolini University
Village Bajhol, Solan (H.P)

+91 9466266628(Mob No.)
rahul.560@shooliniuniversity.com