

Hort 510 Seminar

# Nutraceutical Horticulture

An Overview of Biochemical and Molecular Considerations

Mohan GN Kumar

**\*Broccoli**

**Watercress**

**Radish**

**Bokchoy**

**Turnip**

**Kale**

**Cabbage**

**Mustard**

**Kholrabi**

**Chemical Reaction:**

Wounding/chewing

glucoraphanin + H<sub>2</sub>O → Glucose + Sulforaphane

Enzyme: Myrosinase

Product: Sulforaphane

Cruciferous Sprout Complex  
N-CH<sub>2</sub>-NCS  
(Chlorophanes)  
Toxicopeptic Foods  
Made from...

In addition to the generally-recognized food components, fruits, vegetables and spices produce secondary metabolites that contribute toward human health. They are recognized as **nutraceuticals**. Among other benefits, nutraceuticals can modulate the activity of cytoplasmic *transcription factors* in mammalian cells. Upon activation, transcription factors modulate cell-function to initiate development of metabolic disorders. Several nutraceuticals have been recognized as inhibitors of transcription factors such as *NF-kB*. For example, capsaicin (chilies), gingerol (ginger), curcumin (turmeric), anethole (anise, coriander), eugenol (clove), sulforaphanes (Brassicacae) are known to inhibit activation of *NF-kB*. This seminar explores the health benefits of nutraceuticals of *Horticultural Crops* at cellular level.

September 17, 2020; 2.45 pm