



ภาควิชาพืชสวน คณะเกษตร กำแพงแสน

มหาวิทยาลัยเกษตรศาสตร์ วิทยาเขตกำแพงแสน

Department of Horticulture, Faculty of Agriculture at Kamphaeng Saen Kasetsart University



# **Boost up the bioactive compounds in sprouts**

Paweena Chuenwarin

Lecturer at Department of Horticulture,  
Faculty of Agriculture at Kamphaeng Saen,  
Kasetsart University, Kamphaeng Saen Campus,  
Kamphaeng Saen, Nakhonpathom, Thailand

# Problems



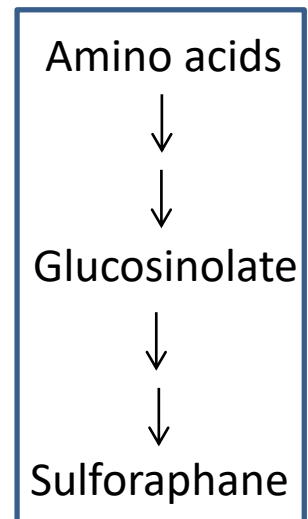
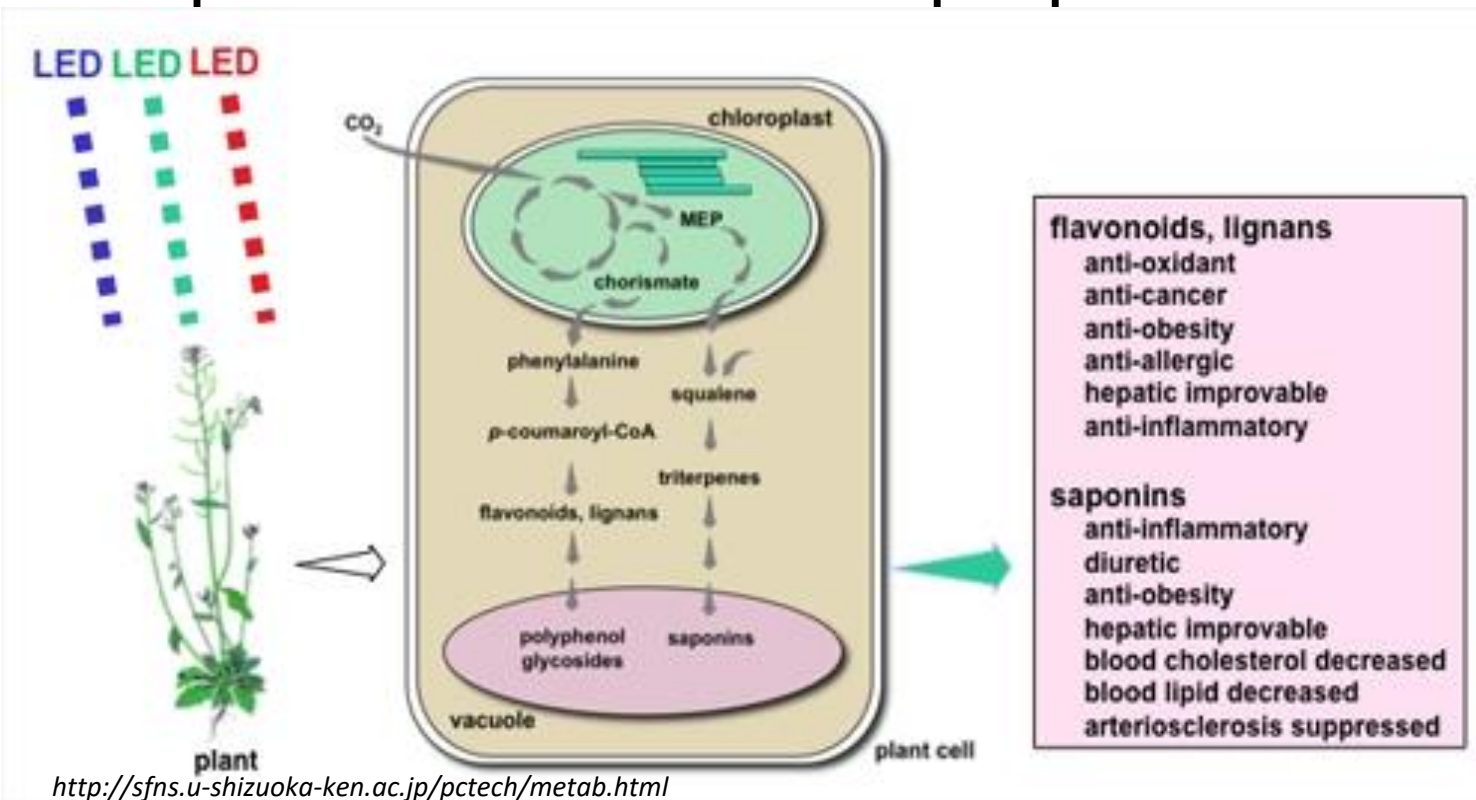
# Problems

- High price but high in nutrition values

<b>Sprout</b>	<b>Protein</b>	<b>Vitamins</b>	<b>Minerals</b>	<b>Bioactive compounds</b>
Soybean	Yes	C, Folate		Fiber, Isoflavone
Sunflower green	Yes	B Complex, D, E	Calcium, Iron, Phosphorus, Potassium, Magnesium	Chlorophyll, Lecithin
Broccoli	Yes	A, C	Iron, Magnesium	Sulforaphane
Chinese kale	Yes	A, C	Iron, Potassium, Magnesium	?

# Health benefits

- Sulforaphane is the cancer-fighting compound, cut risk of cardiovascular disease.
- Isoflavones have been proven to have powerful anti-cancer properties.





# Objective

- To obtain the conditions for growing sprouts under LED light in growth chamber to get high nutrition and high bioactive compound contents



# Activities

- Set up the growth chamber available in Department of Horticulture with the LED light which give specific wavelength (blue light: 450 nm, red light: 680 nm and mix blue and red light ratio 1:1)





# Growing sprouts

- Growing sprouts using only water or growing sprouts supplement with amino acids
  - Soybean
  - Sunflower green
  - Broccoli
  - Chinese kale



# **Determine nutritional values and bioactive compounds**






- Protein using Kjeldahl method
- Vitamin C using titrimetric method
- Sulforaphane using HPLC
- Isoflavone using HPLC
- Etc...



# Place for research and places for growing

- The research will be done within the Department of Horticulture, Faculty of Agriculture at Kampaeng Saen, Kasetsart University, Kampaeng Saen Campus in cooperation with some professors in the department and with some students who join the project
- The results and how to operate will be distributed to people in urban area which has limited space for growing crop and stay close to the urban market

# Timeline

Activities	1 <sup>st</sup> -3 <sup>rd</sup> month	4 <sup>th</sup> -6 <sup>th</sup> month	7 <sup>th</sup> -9 <sup>th</sup> month	10 <sup>th</sup> -12 <sup>th</sup> month
Set up growth chamber				
Prepare seeds				
Growing sprouts				
Determine nutritional values and bioactive compound				
Summarize the result and prepare report to be ready to distribute the information				

# Outputs

- The condition for growing sprout to get higher amount of nutrition and bioactive compounds

# Outcomes

- Farmers or operators can sell sprouts in good price because of the good quality of sprouts
- The consumers purchase high-priced sprouts which more safe and more health benefit





**Thank you for you attetion**

