Cayoma® Grapefruit

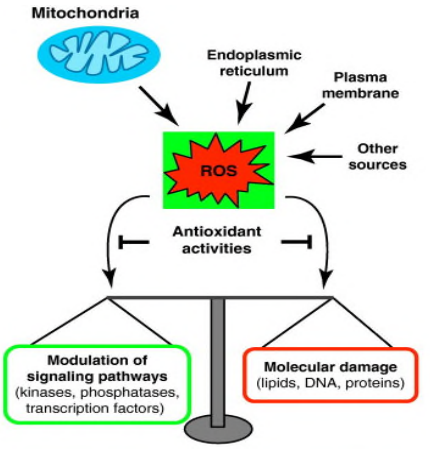
Introduction

Cayoma® Grapefruit is a natural active ingredient of the fruit and seeds of Citrus paradisi. Citrus fruits contain higher amounts of bioflavonoids that have detoxifying properties and can reduce AGE. Cayoma® Grapefruit contains more thatn 10% bioflavonoide, measured as Naringin. Beside Naringin also Hesperidin, Narirutin and others are present.

Cayoma® Grapefruit is a standardized aqueous-alcoholic extract. The high actives content make it self-preserving. The active ingredient can be used in Leave-On formulations at a use concentration of 0.1-0.5%.

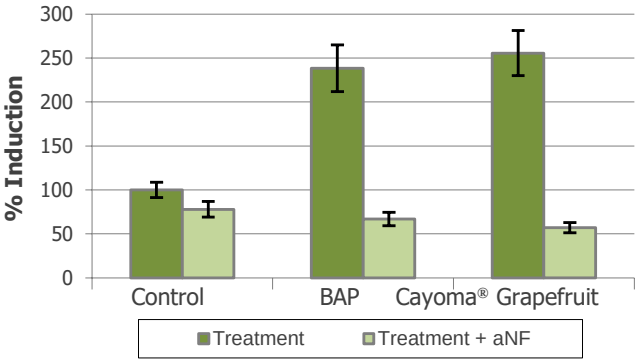
Detoxifying Properties

By indution of phase I and phase II enzyms Cayoma® Grapefruit can effectively change the structure of the molecular waste and excrete it from the cells. Skin cells improve their energy level and remain fully functional for a longer time (Cell Longevity).



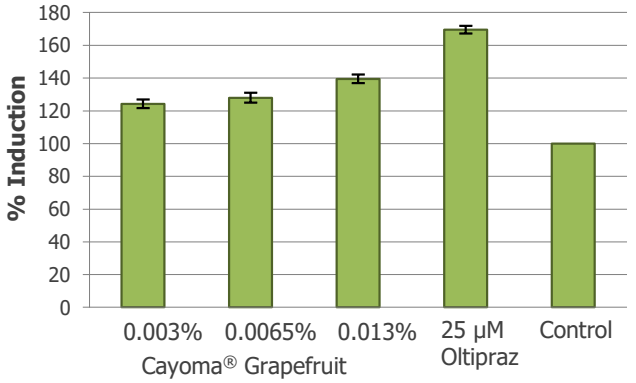
Efficacy Tests on Human Keratinocytes

Phase I Enzyme Induction



BAP: 100nM Benzo-α-pyrene, (CYP inducer) – Bars
aNF: 1µM α-Naphtoflavone, (CYP inhibitor) – Bars

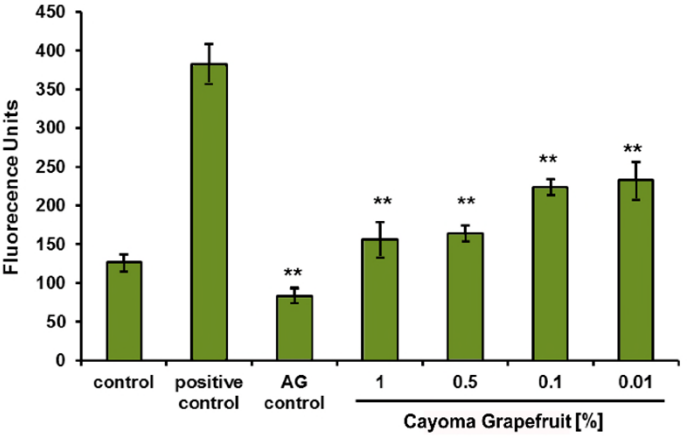
Phase II Enzyme Induction



- Xenobiotic (= foreign to the body) detoxification reaction measured in vitro on human keratinocytes
- Induction of phase I+II enzymes enhancing the detoxification process
- Cytochrome P450 as an example of phase I enzymes
- Quinone reductase as an example of phase II enzymes

Anti-Glycation Effect

Non-enzymatic glycosylation (glycation) between reducing sugar and protein results in formation of advanced glycation end products (AGEs), which leads to a permanent change of protein structures and is responsible for the formation of ROS. Thus, agents that inhibit the formation of AGEs are purported to have therapeutic potentials in patients with diabetes or age-related tissue changes.



Inhibiting Effect of Cayoma® Grapefruit on AGE Autofluorescence *in vitro compared with a* BSA/Glucose positive Control and Aminoguanidine Inhibitor Control (AG Control). Mean±Standard Deviation of three replications **p<0.01

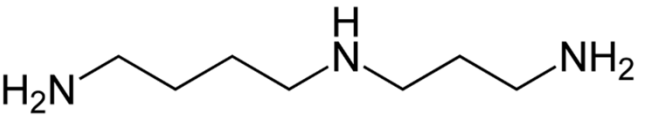
Autophagy

- With the process of autophagy, our body cells break down their own unusable components.
- Misfolded proteins and damaged cell components are used to generate new building blocks.
- Without autophagy, the cellular waste would accumulate in the cell and sooner or later would hinder the smooth functioning of the cell

Cells before the autophagy process | Start of the autophagy process | Disposing of cell waste | Cell after autophagy process

Spermidine

- Spermidine is a Polyamine



- It regulates many biological processes such as fat metabolism, cell growth, cell death, inflammation reduction and autophagy
- A third of the spermidine in our body is made in our microbiome by bacteria that like prebiotic fibers like pectin
- Pectin is found in fruits such as oranges and grapefruit, as well as in vegetables such as carrots and peas
- Can be found in all cells - the content decreases with age
- Promotes the delay in aging
- Promotes cell prolongation by disposing of cell waste through autophagy
- Cayoma® Grapefruit contains spermidine
- Cayoma® Grapefruit contributes to detoxification through the increased formation of Phase I and Phase II enzymes

Fruits	Spermidine content mg/KG
Pineapples	4
Apples	1,6
Bananas	8,6
Grapefruits	7,3

Fruits	Spermidine content mg/KG
Figs	5,2
Limes	5
Peaches	4,4
Grapes	0,06