

The plant

POMEGRANATE PEELS : Fight against oxidation & dysbiosis

Pomegranate is the fruit of the pomegranate tree (*Punica granatum*). This tree from the *Lythraceae* family, originates from the Middle-East and India and is now cultivated all over the Mediterranean area. The fruit contains many seeds separated by white and membranous pericarp.

Pomegranate raised a lot of scientific interest since the 2000s with studies regarding its potential therapeutic properties [1].

Pomegranate juice and peels contain high levels of polyphenols such as ellagitannins, punicalic acid, anthocyanins and flavonoids [2]. Ellagitannins are especially interesting as they show strong antioxidant and anticarcinogenic properties [3]. All parts of the pomegranate including fruits, bark, roots, and leaves have antioxidant and therapeutic properties. However, the most interesting parts in regards to the composition in secondary metabolites are fruit peels and juice [4]. Pomegranate peels also have good reported *in vitro* antibacterial properties with MIC (Minimum Inhibitory Concentration) between 2 and 5 mg/mL against *Bacillus cereus*, *Staphylococcus aureus* or *Escherichia coli* [5].

In vivo studies in rats and mice showed that pomegranate peel extract reduced by 54% lipid peroxidation and enhanced the free-radical scavenging activities of hepatic enzymes [6].

Pomegranate peel extracts are also efficient *in vivo* against bacterial infections, for example against *Salmonella typhimurium* in mice [7]. It can also modulate gut microbiota in favor of beneficial bacteria in poultry [8]. The wide range of health-related properties of pomegranate peels make it a good candidate to fight dysbiosis and to help free-radical scavenging in livestock.



Pomegranate raised a lot of scientific interest since the 2000s

- [1] Jurenka, Alternative medicine review (2008)
- [2] Zarfeshany *et al.*, Adv Biomed Res (2014)
- [3] Viladomiu *et al.*, Evid Based Complement Alternat Med (2013)
- [4] Hassoun *et al.*, J Biochem Mol Toxicol (2004)
- [5] Falsaperla *et al.*, Eur Urol (2005)
- [6] Amakura *et al.*, J Chromatogr A (2000)
- [7] Negi and Jayaprakasha, J Food Science (2003)
- [8] Chidambara *et al.*, J Agric Food Chem (2002)

World of botanicals

Raw and fermented grape seed (FGS) in broilers

There's a growing interest to find natural antioxidant and, simultaneously, to use co-products coming from the food industry. Fermented GS (FGS) is of particular relevance for its high antioxidant effects due to its polyphenolic content (catechin, epicatechin, chlorogenic acid, rutin), intestinal microflora regulation and low content in antinutritional compounds. Both GS and FGS increased the final body weight at 42 days (+140 and +186 g respectively) and ADG (+3.3 and +4.3 g) compared to control. FGS also increased *Lactobacillus* spp. and decreased *Staphylococcus aureus* in the caecum.

Gungor *et al.*, Animal (2021)

Liquorice benefits in weaning piglets

The effects of a supplementation with a liquorice extract (LE) rich in glycyrrhizic acid were investigated on weaning piglets, known to be often submitted to various stresses affecting immunity and health. LE supplementation significantly downregulated the mRNA level of inflammatory genes (TNF- α , IL-6, ICAM-1) in the liver at 150 mg / kg feed. It also promoted serum biochemistry index with a reduction in total cholesterol and HDL-C. The antioxidant capacity of serum, liver and spleen were also improved as well as serum IgG content (514.70 ± 18.44 vs 423.17 ± 13.96 μ g / mL for the control group, $p = 0.043$).

Ting *et al.*, Preprint available at Research Square (2020)

INTERVIEW

PS Nutrition team in Thailand "PhytoCapcin is consistently improving animal performance"

PS Nutrition is a major player in animal nutrition in Thailand. PS Nutrition decided to work with ID4Feed because the two companies share common ideas on improving animal health and performance through phytochemicals. The team answered our questions.

Can you present PS Nutrition and the work priorities of the company?
PS Nutrition: PS Nutrition aims to focus on the distribution of phytochemical feed additives to answer the market of animal nutrition needs for alternative solutions to antibiotics.

Why did you choose ID4FEED as a partner?

PS Nutrition chose ID4FEED from the establishment of the company for the expertise of ID4FEED Team in the phytochemicals and plant extracts market. ID4FEED has provided us with terrific products and support through our market development in Thailand since the very beginning.

What are the main issues related to animal production in Thailand?

The main issue in the majority of animal production in Thailand is the stresses the animals face from the hot and humid climate. There are some farms with advanced housing technologies and management which allow a good control, but the majority still faces this problem all the year.

What are the benefits of Phytocapcin (name of ID PHYT CAPCIN in the country) to solve some of these issues?

PhytoCapcin offers several advantages such as the stimulation of feed intake. This natural product also has strong anti-inflammatory, anti-oxidant and anti-pain properties. The advantage of this product is also it can be applied to several species.



From left to right : Pramkamon Tongdaung ; Thananat Wonganusorn ; Nattarin Phisitaukara and Woraphong Wonganusorn

For what species are you using Phytocapcin? What are the main benefits you observe?

We use PhytoCapcin mainly on layers, pigs in the grower-finisher phase and sows. The main benefits we see are better utilization of the energy, stimulation of feed intake, reduced stress and better carcass quality.

What is the thing you like the most with the product?

PhytoCapcin is an interesting product and we like it very much because of its consistent positive results in trials and especially because of the satisfaction of our customers. Our trials demonstrated great return on investment.

Did you conduct some University studies? Can you explain us the main outcomes in a few words?

Yes, with Kasetsart University (Thailand), presented at the BIOSIS DAYS last year. We have been working on grower-finisher, and it has shown a very significant improvement in FCR. Excellent return on investment and better feed conversion per gain.

What do you wish you could do with Phytocapcin in the future?

Finding compatibility with other phytochemical additives that provides customized solutions according to customers' needs.

News

JRP 2021 - Scientific Poster

"Les Journées de la Recherche Porcine" (Pig Research Days) took place in a totally virtual way from 1 to 4 February 2021. For this event, ID4FEED presented a scientific poster on the effects of distributing *Capsicum* powder to lactating sows and their piglets after weaning. This poster is available on our website, section "Scientific content".

ID Phyt Grape-Ox

Based on seed and skin extract of grapes, the product is a natural way to replace up to 50% of vitamin E of the diets for its biological antioxidant action. The unicity of ID PHYT GRAPE OX MIX-FEED is its richness in monomers and oligomers, which are the most bioavailable polyphenols. It ensures a systemic effect and a full protection of the animals. Ex-vivo results run in 2020 confirmed the equivalency between vitamin E and ID PHYT GRAPE OX MIX-FEED.



DIARY

Rennes (France)
SPACE

**14-16
Sept.**

Annecy (France)
Biosis Days

**25-26
Oct.**

Geneva (Switzerland)
Feedinfo Summit

**27-28
Oct.**