

## The Modulation of Health and Inflammatory Status in Young Pigs by Grape Waste Enriched in Polyphenols

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**Abstract :** Inflammatory-associated diseases have an increased trend in the past decades. The pharmacological strategies aimed to treat these inflammatory diseases are very expensive and with non-beneficial results. The current trend is to find alternative strategies to counteract or to control inflammatory component of diseases. The grape by-products either seeds or pomace are rich in bioactive compounds (e.g. polyphenols) which may be beneficial in prevention of inflammation associated with cancer progression and other pathologies with inflammatory component. The in vivo models are very useful for studying the immune and inflammatory status. The domestic pig (*Sus scrofa domesticus*) is related to human from anatomic and physiologic point of view, representing a feasible model for studying the human inflammatory pathologies. Starting from these data, we evaluated the effect of a diet containing 5% grape seed cakes (GS) on piglets blood biochemical parameters and immune pro- and anti-inflammatory biomarkers (IL-1 beta, IL-8, TNF-alpha, IL-6, IFN-gamma, IL-10, IL-4) in spleen and lymph nodes. 12 weaned piglets were fed for 30 days with a control diet or an experimental diet containing 5% GS. At the end of trial, plasma and tissue samples (spleen and lymph nodes) were collected and the biochemical and inflammatory markers were analysed by using biochemistry analyser and ELISA techniques. Our results showed that diet included 5% GS did not influence the health status determined by plasma biochemical parameters. Only a tendency for a slight increase of the biochemical parameters associated with energetic profile (glucose, cholesterol, triglycerides) was observed. Also, GS diet had no effect on pro- and anti-inflammatory cytokines content in spleen and lymph nodes tissue. Further experiments are needed in order to investigate other rate of dietary inclusion which could provide more evidence about the effect of grape bioactive compounds on pigs used as animal model.

**Keywords :** animal model, inflammation, grape seed by-product, immune organs

**Conference Title :** ICCCM 2017 : International Conference on Clinical and Cellular Immunology

**Conference Location :** Venice, Italy

**Conference Dates :** August 14-15, 2017