nuPhoria®, a dietary plant bioactive formulation that efficiently triggers anti-inflammatory and anti-oxidant responses in broilers under heat stress challenge

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In order to evaluate the effect of **nuPhoria®** supplementation on broilers' anti-inflammatory and anti-oxidant status, a trial at the Agricultural University of Athens, Greece (Laboratory of Nutritional Physiology & Feeding) was conducted. The aim of the trial was to evaluate the dose-response effect of **nuPhoria®** on broilers' selected liver and gut function biomarkers under heat stress challenge.

In total 294 one-day-old, male Ross-308 broilers were allocated in 3 treatments. All experimental treatments received a maize-soybean meal basal diet in mash form formulated to meet Ross-308 nutrient requirements. The first treatment received a basal diet without nuPhoria® supplementation (N0) while the other treatments with 1 Kg/ton (N1000), and 2 Kg/ton (N2000) nuPhoria® respectively.

Results provide ample evidence for the strong anti-inflammatory and antioxidant function of **nuPhoria®** in whole blood, liver and duodenum in a heat stress period. **nuPhoria®** addition displayed beneficial modulations by downregulating the levels of AhR components, upregulating the levels of nuclear factor erythroid 2-related factor 2 (Nrf2) components (except Keap1, which was beneficially affected), and downregulating toll-like receptors (TLR)-signaling related to inflammation, mitogen-activated protein kinase (MAPK) components, as well as downregulating heat stress components. These results collectively suggest that varying levels of **nuPhoria®** inclusion can lead to decreased inflammation, enhanced antioxidant protection, and a reduced need for repair through heat shock proteins.

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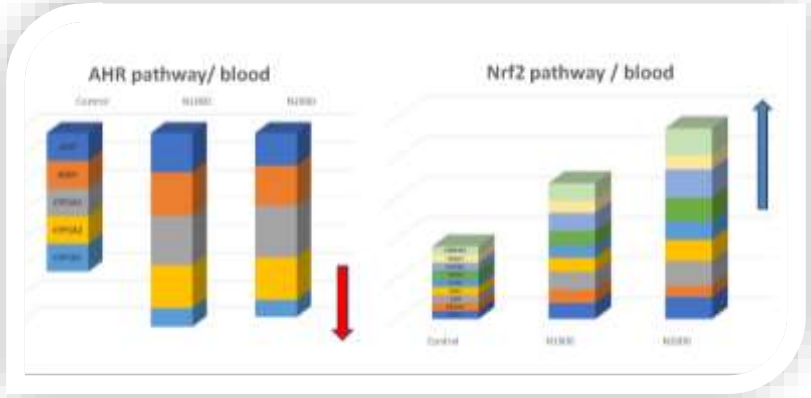
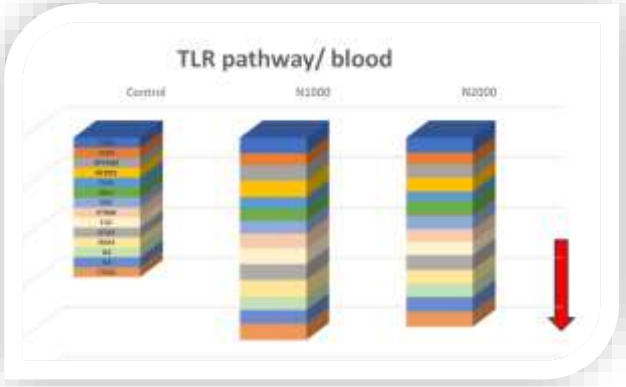
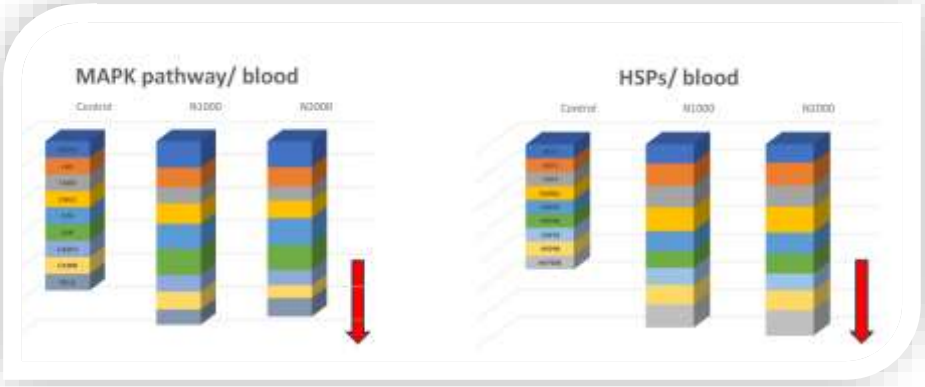
Whole blood







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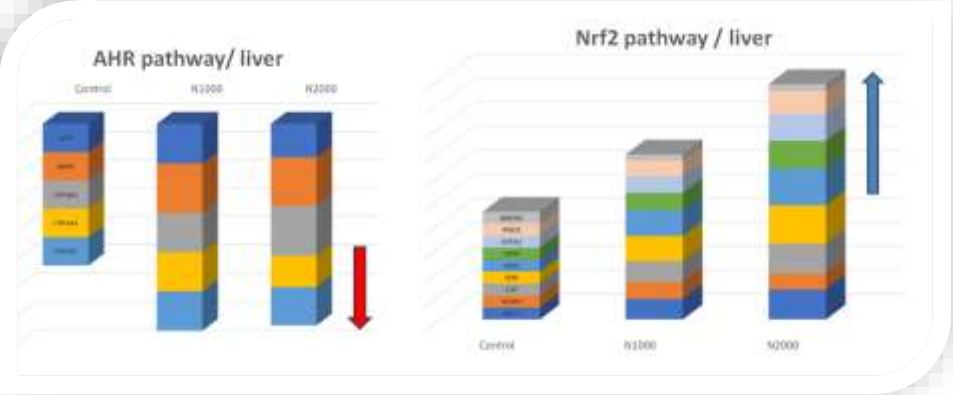
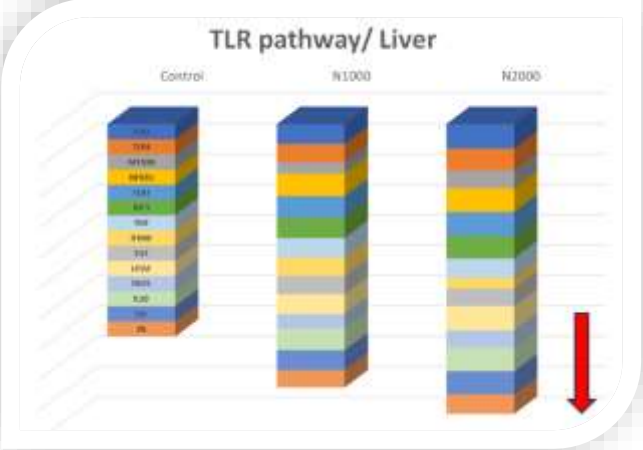
Liver


AHR pathway/ liver
Control
N1000
N2000
Nrf2 pathway / liver
Control
N1000
N2000


TLR pathway/ Liver
Control
N1000
N2000


MAPK pathway/ liver
Control
N1000
N2000
HSPs/ liver
Control
N1000
N2000

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Duodenum