**Polyunsaturated Fatty Acid Profile in Hemp-Fed Chicken Egg**

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Polyunsaturated fatty acids (PUFAs) belong to a group of essential nutrients that are necessary for the optimal health of human and animals. Increasing concerns over the sustainable sources of essential PUFAs led to explore the PUFA-rich rations that can enrich ω-3 acids in meat and eggs. The nutritional composition (including linoleic and α-linolenic acids) of industrial hemp products provide opportunities using it as a livestock ration. A mixture of hemp hearts and commercially available soy-based diet (1:1) was fed to an experimental group of twenty-five hens (1 hen/cage) and a commercially available soy-based diet for a control group of twenty-five hens. Egg yolks (a day/week up to six weeks) were composited, freeze dried, extracted, methylated, and being analyzed for twelve PUFAs using gas chromatography mass spectrometry (GC/MS). First eggs were pooled separately and will be analyzed. To our knowledge, this is the first study exploring hemp feed as a potential livestock ration in the USA to enrich PUFAs in chicken eggs.