Lipid Compounds in Runner and Virginia Type Peanuts

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Raw runner and Virginia-type peanuts were obtained from 3 different warehouses as 10 pound samples from 5 individual commercial lots (n=15 for each market-type) for a metabolomics type study. Samples were split into two five-pound subsamples with one subsample remaining raw while the other was roasted (Hunter L-value 48±1). Although the request for the samples specified normal oleic peanuts, seven of the samples of the runner type were actually high oleic cultivars. The samples were subjected to targeted (total fat, fatty acid profiles, tocopherols) and non-targeted analyses (LC-MS, GC-MS) for secondary metabolites.

As the Virginia type samples were all normal oleic, the fatty acid profiles were not statistically different. The runner type samples had O/L ratios in a range of 2.06 to 2.44 for the normal oleic samples and 23.71 to 35.42 for the high oleic samples. The tocopherol profiles followed the normal pattern for peanuts in all samples, that is a ratio close to 1 for alpha compared to gamma. Principal Components Analysis of the tocopherol data showed a clear clustering of all the Virginia type samples as one grouping and the high oleic runners clustering both apart from the Virginia-type and into separate clusters for high and normal oleic cultivars. Of the metabolites determined by the non-targeted analyses, oxygenated compounds originating from fatty acids predominated. These were present at higher levels in the normal oleic samples than the high oleic ones.