

The Effects of Processing, Storage Temperature, and Atmospheric Conditions on Lipid Oxidation in Conventional and High Oleic Varieties of *Arachis hypogaea* (Peanuts).

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Peanuts and their products have on average 50-60% oil, this is normally in the form of mono and polyunsaturated fatty acids. Therefore the early onset of lipid oxidation is a major concern in the food industry, due to quality and shelf life demands made by suppliers and consumers. This study investigates the key parameters that influence the storage stability of the raw material including the nibbed product format for use in the peanut industry, mainly in cereal and cereal bar markets.

The storage of high oleic peanuts (HOP) and conventional peanuts (CP) was tested under storage variables of raw material format, temperature and atmosphere over a 5 month period. Measurement of peroxide values (PVs) at 7 day intervals showed that both varieties were susceptible to oxidation. Comparison of the data indicated that HOP was less prone to oxidation than CP, with both whole kernel and nibbed (<2mm³) peanuts showing similar trends. Modified atmospheric packaging (MAP) showed no impact on storage stability when comparing CP and HOP. Storage temperatures of 30°C or above were found to increase the rate of lipid oxidation in both varieties. HOP whole kernels were found to exhibit an initial lag phase in the onset of lipid oxidation during storage