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FACULTEIT LANDBOUWKUNDIGE EN
TOEGEPASTE BIOLOGISCHE WETENSCHAPPEN

LABORATORIUM VOOR LEVENSMIDDELEN-
MICROBIOLOGIE EN -CONSERVERING
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Herewith I send you the report concerning the vacuum storage of peanuts at 30°C. This is the second report after 3 months of storage.

Kind regards,

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Storage experiment of peanuts at 30°C

1. Aim of the experiment:

The vacuum packaged peanuts were stored at 30°C, normal relative humidity (around 60%) and in a dark environment. The critical properties of peanuts (peroxide number as value for oxidation, water activity and water content) were determined after 3 months of storage. The first package was opened in June 2000 (after 1.5 months of storage). Before opening the package, also the remaining O_2 and CO_2 will be measured.

The possible redistribution of the moisture during storage was determined by measuring the water activity and the moisture content of the peanuts, placed on the surface of the package and in the middle of the package.

All analyses (accept the gas analysis) were conducted in duplicate.

2. Materials and Methods:

The water activity was measured by the Novasina Thermoconstanter at 25°C. The water content was determined using the classical gravimetric method in which the difference in weight between the humid and the dried product (dried at 105°C) was measured. The water content is expressed as % H_2O on dry mass basis (g H_2O per 100g dry matter). These are the units applied in literature (% H_2O s.s., g H_2O/100 g de substance sèche). All these determinations were conducted in duplicate.
Before opening the package, the gas concentration (% O_2, % CO_2 and % N_2) was measured by means of gas chromatography.
The peroxide number was titrimetric determined after extraction.

3. Results:

The gas composition in the package after 3 months of storage at 30°C was 2.10% O_2 – 1.50% CO_2 – 96.40% N_2.

In the Table below an overview is given of the measured water activity (± standard deviation) and the moisture content (± standard deviation) (% H_2O s.s.) of the peanuts placed on the surface of the package and in the middle of the package.

Place in the package	**a_w ± standard deviation**	**% H_2O s.s ± standard deviation**
middle	26.30 ± 0.56	1.74 ± 0.02
surface	26.25 ± 1.62	1.69 ± 0.03

No significant difference was found in both water activity and moisture content of the peanuts situated on the surface or in the middle of the package.