

05/24/2013

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Certificate of Analysis

Customer: Nohmad Snack**Sample Identification:**

Batch #: B-12821

BL ID #: 13-0317

Description: Unroasted (raw) Cacao Paste (liquor), Chocolate, 1

Date Received: 05/09/2013

Results:

Analysis	Result [†]	Units
Antioxidant power against peroxy radicals	615	μmole TE/gram
Antioxidant power against hydroxyl radicals	1,043	μmole TE/gram
Antioxidant power against peroxynitrite	51	μmole TE/gram
Antioxidant power against super oxide anion	1,420	μmole TE/gram
Antioxidant power against singlet oxygen	400	μmole TE/gram
Total ORAC _{FN} (sum of above)	3,529	μmole TE/gram

* The acceptable precision of the ORAC assay is < 15% relative standard deviation.

† Based on defatted weight.

There are five predominant reactive species found in the body: peroxy radicals, hydroxyl radicals, peroxynitrite, super oxide anion, and singlet oxygen. Total ORAC_{FN} provides a measure of the total antioxidant power of a food/nutrition product against the five predominant reactive species.

The ORAC result is expressed as micromole trolox equivalency (μmole TE) per gram.

Released on behalf of Brunswick Laboratories by

Jin Ji, Ph.D.

Chief Technology Officer

REFERENCES:

- [1] Ou, B. *et al.*, *J Agric and Food Chem*, **2001**, 49 (10): 4619-4626.
- [2] Huang, D. *et al.*, *J Agric and Food Chem*, **2002**, 50 (7): 1815-1821.
- [3] Ou, B. *et al.*, *J Agric and Food Chem*, **2002**, 50 (10): 2772-2777.
- [4] Zhang, L. *et al.*, *Free Radic.Bio Med*, **2007**, 43 (suppl. 1): S17.
- [5] Dubost, N.J. *et al.*, *Food Chem*, **2007**, 105 (2): 727-735
- [6] Zhang, L. *et al.*, *J Agric and Food Chem*, **2009**, 57(7): 2661-2667.
- [7] Ou, B. *et al.*, Method for assaying the antioxidant capacity of a sample. *US Patent 7, 132, 296 B2*.

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