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## Certificate of Analysis

|                                    |   |
|------------------------------------|---|
| Product:                           | Rosemary Antioxidant Extract                  |
| Raw material:                      | <i>Rosemarinus officinalis</i> -Leaves, dried |
| Batch number:                      | 961325  |
| Country of origin of raw material: | Morocco, Greece                               |
| Country of origin of product:      | Germany                                       |
| Production: September 2016         | Retest: December 2023                         |
| D/E – Ratio:                       | 2,8 – 4,0 kg raw material yeild 1kg product   |
| Product contains:                  | About 60% Sunflower oil (organic)             |

| <b>Sansory Check</b> |  |                |
|----------------------|--|----------------|
| <b>Feature</b>       | <b>Reference</b>                                       | <b>Results</b> |
| Appearance           | Dark brown, at room temperature viscous liquid product | Complies       |
| Odour                | Characteristics  | Complies       |

| <b>Analytical Check</b>  |                 |               |               |              |
|--|-----------------|---------------|---------------|--------------|
| <b>Feature</b>   | <b>Method</b>   | <b>limits</b> | <b>Values</b> | <b>Units</b> |
| Rosemanol  | 21.028.06, HPLC | n.s.          | 0,034         | %            |
| 7-Methyl-Rosmanol  | 21.028.06, HPLC | n.s.          | 0.064         | %            |
| Carnosol   | 21.028.06, HPLC | n.s.          | 0.74          | %            |
| Carnosic Acid  | 21.028.06, HPLC | > 6           | 7.2           | %            |
| 12-O-Methyl-Carnosic Acid  | 21.028.06, HPLC | n.s.          | 0.98          | %            |
| Sumof phenolic diterpenes (calculated as Carnosic Acid)                | 21.028.06, HPLC | 8 - 10        | 9.0           |              |
| Reference AO Compounds Carnosol+ Carnosic Acid (cal. As Carnosic Acid) | 21.028.06, HPLC | 7 - 10        | 8.0           | %            |
| Betulinic Acid   | 21.028.06, HPLC | n.s.          | 0.85          | %            |
| Ursolic Acid   | 21.028.06, HPLC | n.s.          | n.d.          | %            |

|                                 |                     |      |      |   |
|---------------------------------|---------------------|------|------|---|
| Oleanolic Acid                  | 21.028.06, HPLC     | n.s. | n.d. | % |
| Steam volatile flavor compounds | 21.006.01, GCMS     | <2   | 1.3  | % |
| Content of water                | Karl Fischer method | <1   | 0.44 | % |
| Residual content of ethanol     | 21.025.02, GCFID    | <0.5 | 0.08 | % |

Antioxidative activity compared with 500 ppm alpha tocopherol  
(Rancimat test in lard at 120°C and 15 Liter/hour air flow)

| Dosage Rosemary Antioxidant | Relation to 500 ppm alpha tocopherol |
|-----------------------------|--------------------------------------|
| 200 ppm                     | Same activity                        |
| 500 ppm                     | 1,3 time stronger activity           |

**Storage:** Store in well-filled, tightly sealed containers, in a cool dry place, away from direct sunlight.

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