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Essential oil of palmarosa [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*]

*Huile essentielle de palmarosa [*Cymbopogon martini *(Roxb.) W. Watson var.* motia*]*

ICS: 71.100.60

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Foreword

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This second edition cancels and replaces the first edition (ISO 4727:1988), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the title has been changed;

— the structure of the standard has been revised;

— clauses 4.8 to 4.11 have been replaced by adding a chromatographic profile (Table 2);

— editorial corrections have been made.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Essential oil of palmarosa [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*]

1 Scope

This document specifies certain characteristics of the essential oil of palmarosa [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*], with a view to facilitate the assessment of its quality.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 210, *Essential oils — General rules for packaging, conditioning and storage*

ISO/TS 211, *Essential oils — General rules for labelling and marking of containers*

ISO 212, *Essential oils — Sampling*

ISO 279, *Essential oils — Determination of relative density at 20 degrees C — Reference method*

ISO 280, *Essential oils — Determination of refractive index*

ISO 592, *Essential oils — Determination of optical rotation*

ISO 875, *Essential oils — Evaluation of miscibility in ethanol*

ISO 1041, *Essential oils — Determination of freezing point*

ISO 11024 (all parts), *Essential oils — General guidance on chromatographic profiles*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
essential oil of palmarosa
essential oil obtained by steam distillation of the grass of [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*] of the Poaceae family, collected in flowering stage

Note 1 to entry: For information on CAS number, see ISO/TR 21092.

4 Requirements

4.1 General requirements

Essential oil of palmarosa [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*] shall meet the requirements as given in Table 1.

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Table 1 — Requirements for the essential oil of palmarosa [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*]

Characteristics	Requirements	ISO test method
Appearance	Clear mobile liquid	—
Colour	Pale yellow to yellow	—
Odour	Rose like with grassy note	—
Relative density at 20 °C, d_{20}^{20}	0,880 to 0,894	ISO 279
Refractive index at 20 °C	1,471 to 1,478	ISO 280
Optical Rotation	Between -1° and +3°	ISO 592
Miscibility in ethanol 70 % (volume fraction), at 20 °C	The solubility in 70 % (v/v) ethanol shall be 1 volume in not more than 2 volumes to give a clear solution	ISO 875

4.2 Chromatographic profile

Carry out the analysis of the essential oil by gas chromatography. Determine the chromatographic profile in accordance with ISO 11024 (all parts). Identify in the chromatogram obtained, the representative and characteristic components shown in Table 2. The proportions of these components, indicated by the integrator, shall be as shown in Table 2. This constitutes the chromatographic profile of the essential oil.

Table 2 — Chromatographic profile

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Component	Min.	Max.
	%	%
Myrcene	0,1	0,5
Limonene	0,1	1,0
(E)-β-Ocimene	0,2	2,0
Linalool	1,5	4,0
Nerol	0,2	1,0
Neral	0,05	0,3
Geraniol	77,0	85,0
Geranial	0,1	0,6
Geranyl acetate	5,0	13,0
β-Caryophyllene	1,0	2,5
(E,E)-Farnesol	traces[a]	1,5
Geranyl hexanoate	0,2	1,0

[a] traces: < 0,01 %.

NOTE The chromatographic profile is normative, contrary to typical chromatograms given for information in Annex A, see Figures A.1 and A.2.

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5 Flashpoint

Information on the flashpoint is given in Annex B.

6 Sampling

Sampling shall be performed in accordance with ISO 212. Minimum volume of test sample is 50 ml.

NOTE The volume allows each of the tests specified in this document to be carried out at least once.

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7 Packaging, labelling, marking and storage

These items shall be in accordance with ISO/TS 210 and ISO/TS 211.

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Annex A
(informative)

Typical chromatograms of the analysis by gas chromatography of the essential oil of palmarosa [*Cymbopogon martini* (Roxb.) W. Watson var. *motia*]

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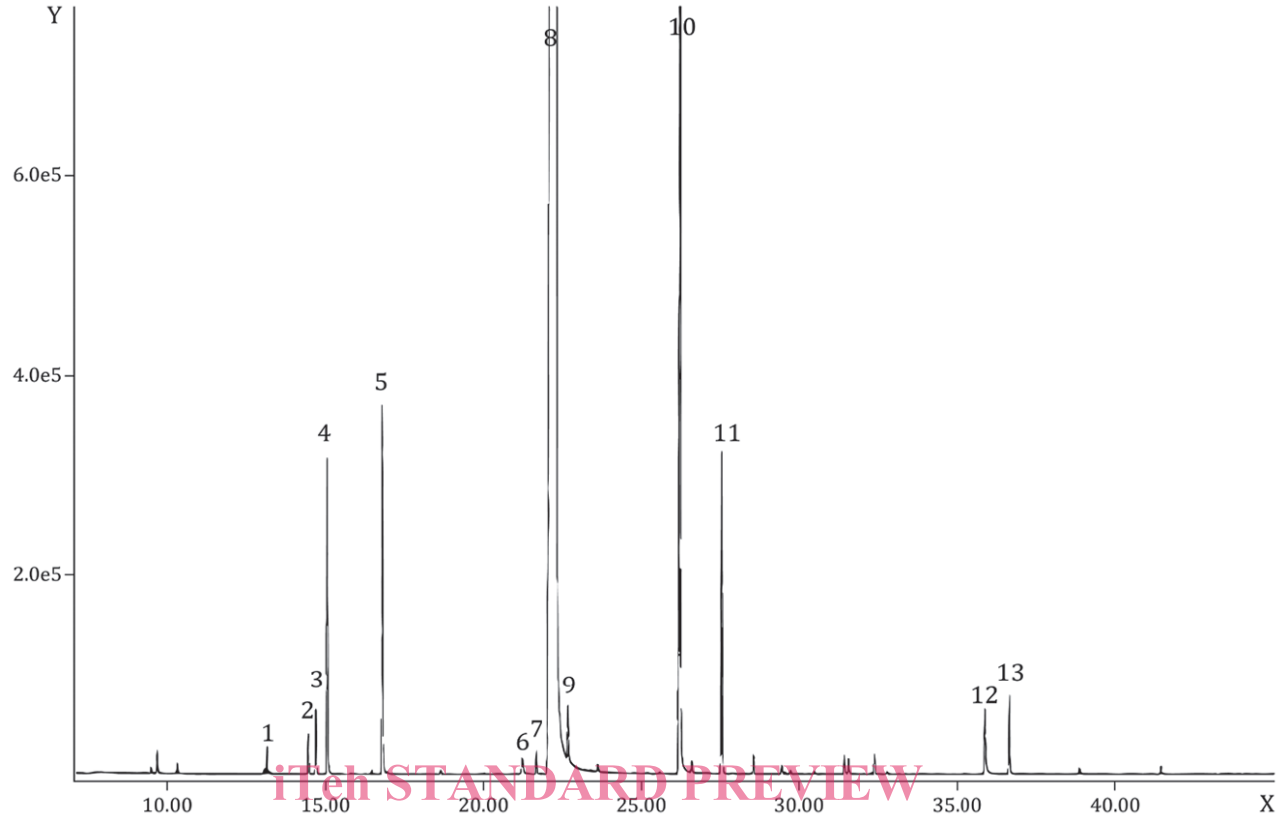

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Peak identification

1 Myrcene
2 Limonene
3 *(Z)*-β-Ocimene
4 *(E)*-β-Ocimene
5 Linalool
6 Nerol
7 Neral
8 Geraniol
9 Geranial
10 Geranyl acetate
11 β-Caryophyllene
12 *(E,E)*-Farnesol
13 Geranyl hexanoate

Key

Y detector response (pA)
X time (min)

Operating conditions

Column: fused silica capillary; length 60 m; internal diameter 0,25 mm

Stationary phase: 5 % diphenyl, 95 % dimethyl polysiloxane (RTX-5®)[1)]

Film thickness: 0,10 µm

Oven temperature: temperature programming from 45 °C to 240 °C at a rate of 4 °C/min, hold 11,25 min

Injector temperature: 230 °C

Detector temperature: 250 °C

Detector: flame ionization type

Carrier gas: helium

Volume injected: 0,1 µl

Carrier gas flow rate: 1 ml/min

Split ratio: 1/100

1) RTX-5 is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.

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Figure A.1 — Typical chromatogram taken on an apolar column

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