Background

1. CX/MAS 24/43/3, Appendix I, Part A lists the corresponding responses from CCSCH7 to the questions raised by CCMAS42, aiming to support the endorsement regarding various methods in the spices and culinary herbs (SCH) standards.

2. In addition, CX/MAS 24/43/3, Appendix I, Part B includes the testing methods in the three SCH standards requiring endorsement by CCMAS43 and all these three standards will be submitted to CAC47 for adoption.

Explanatory notes

3. It is noted that, apart from the five SCH standards listed in the first sub-bullet point of paragraph 1 of CX/MAS 24/43/3 (i.e., Standards for dried or dehydrated ginger (CXS 343-2021), Cloves (CXS 344-2021), Basil (CXS 345-2021), Saffron (CXS 351-2021), Chili Pepper and Paprika (CXS 353-2022)), the testing methods in the Standard for Dried Seeds – Nutmeg (CXS 352-2022) will also require endorsement by CCMAS43. This standard was inadvertently omitted.

4. In summary, a total of nine SCH standards requires endorsement of their testing methods by CCMAS43. Among these, the testing methods for three standards are included in CX/MAS 24/43/3 Appendix I, Part B. To facilitate the discussions, the testing methods for the remaining six standards are reproduced in Annex I of this document, with responses from CCSCH7 incorporated in yellow highlighted mode.

Recommendation

5. CCMAS43 is invited to endorse the methods of analysis outlined in Annex I of this document.
### 1. Standard for Dried Roots, Rhizomes and Bulbs: Dried or Dehydrated Ginger (CXS 343-2021)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Principle</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>ISO 939</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Total Ash on dry basis</td>
<td>ISO 939 and ISO 928</td>
<td>Distillation and Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Acid Insoluble Ash on dry basis</td>
<td>ISO 939 and ISO 930</td>
<td>Distillation and Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Volatile Oil on dry basis</td>
<td>ISO 939 and ISO 6571</td>
<td>Distillation followed by Volumetry</td>
<td>I</td>
</tr>
<tr>
<td>Extraneous Matter</td>
<td>ISO 927</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Foreign Matter</td>
<td>ISO 927</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Insect Damage</td>
<td>Method V-8 Spices, Condiments, Flavours and Crude Drugs (Macroanalytical Procedure Manual) MPM: V-8. Spices</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td>Whole dead insect</td>
<td>ISO 927</td>
<td>Visual examination</td>
<td>I</td>
</tr>
<tr>
<td>Mammalian/ Other Excreta</td>
<td>MPM V-8 Spices, Condiments, Flavours and Crude Drugs (Macroanalytical Procedure Manual) MPM: V-8. Spices (For whole)</td>
<td>Visual Examination followed by Gravimetry</td>
<td>IV</td>
</tr>
<tr>
<td>Live Insect</td>
<td>ISO 927 AOAC 960.51</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td>Calcium (as oxide) on dry basis</td>
<td>ISO 1003, Annex A</td>
<td>Chemical reaction followed by gravimetry</td>
<td>IV</td>
</tr>
<tr>
<td>SO$_2$</td>
<td>AOAC 963.20</td>
<td>Colorimeter</td>
<td>II</td>
</tr>
</tbody>
</table>

### 2. Standard for Dried Floral Parts: Cloves (CXS 344-2021)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method*</th>
<th>Principle</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>ASTA 2.0</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Volatile oil</td>
<td>ISO 6571</td>
<td>Distillation and Volumetry</td>
<td>I</td>
</tr>
<tr>
<td>Total ash (dry basis)</td>
<td>ISO 928</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Acid Insoluble Ash</td>
<td>ISO 930</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Extraneous matter</td>
<td>ISO 927</td>
<td>Visual</td>
<td>I</td>
</tr>
<tr>
<td>Foreign matter</td>
<td>ISO 927</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Insect damage</td>
<td>ISO 927 Method V-8 Spices, Condiments, Flavours and Crude Drugs</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td>Insects/Excreta/Insect fragments</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td>Crude fibre</td>
<td>ISO 5498</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Mold visible</td>
<td>Method V-8 Spices, Condiments, Flavours and Crude Drugs</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td>Live insect</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td>Mammalian or/and Other excreta</td>
<td>Method V-8 Spices, Condiments, Flavours and Crude Drugs</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
</tbody>
</table>
### 3. Standard For Dried Basil (CXS 345-2021)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Principle</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>ISO 939</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Total Ash</td>
<td>ISO 928</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Acid Insoluble Ash</td>
<td>ISO 928 and ISO 930</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Volatile Oil</td>
<td>ISO 6571</td>
<td>Distillation Volumetry</td>
<td>I</td>
</tr>
<tr>
<td>Extraneous Matter</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Foreign Matter</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Insect Damage</td>
<td>Method V-8 Spices, Condiments,</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td></td>
<td>Flavors and Crude Drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Macroanalytical Procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual, FDA Technical Bulletin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insects/Excreta/Insect Fragments</td>
<td>Method appropriate for particular</td>
<td>Visual Examination</td>
<td>IV</td>
</tr>
<tr>
<td></td>
<td>spice from AOAC Chapter 16,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>subchapter 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mould damage</td>
<td>Method V-8 Spices, Condiments,</td>
<td>Visual examination (for)</td>
<td>IV</td>
</tr>
<tr>
<td></td>
<td>Flavors and Crude Drugs</td>
<td>whole)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Macroanalytical Procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual, FDA Technical Bulletin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammalian Excreta, And Other</td>
<td>Method V-8 Spices, Condiments,</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Excreta</td>
<td>Flavors and Crude Drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Macroanalytical Procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual, USFDA, Technical Bulletin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>V.39 B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(For whole)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. Draft Standard for Dried Floral Parts – Saffron (CXS 351-2021)

<table>
<thead>
<tr>
<th>Provision</th>
<th>Method</th>
<th>Principle</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>ISO 3632-2</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Total Ash</td>
<td>ISO 3632-2 and ISO 928</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Acid Insoluble Ash</td>
<td>ISO 3632-2 and ISO 930</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Soluble extract in cold water</td>
<td>ISO 3632-2 and ISO 941</td>
<td>Extraction</td>
<td>I</td>
</tr>
<tr>
<td>Taste strength (expressed as</td>
<td>ISO 3632-2</td>
<td>Absorbance</td>
<td>IVI</td>
</tr>
<tr>
<td>picrocrocin) $A_{1cm}^{1%}$ 257 nm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aroma strength (expressed as</td>
<td>ISO 3632-2</td>
<td>Absorbance</td>
<td>IVI</td>
</tr>
<tr>
<td>safranal) $A_{1cm}^{1%}$ 330 nm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coloring strength (expressed as</td>
<td>ISO 3632-2</td>
<td>Absorbance</td>
<td>IVI</td>
</tr>
<tr>
<td>crocin) $A_{1cm}^{1%}$ 440 nm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraneous Matter</td>
<td>ISO 3632-2</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Foreign Matter</td>
<td>ISO 3632-2</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td></td>
<td>followed by Gravimetry</td>
<td></td>
</tr>
<tr>
<td>Provision</td>
<td>Method</td>
<td>Principle</td>
<td>Type</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Insect Damage</td>
<td>ISO 927</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Whole dead Insects /Insect Fragments</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Visible mould</td>
<td>Method V-8 Spices, Condiments, Flavours and Crude Drugs (Macro analytical Procedure Manual, FDA Technical Bulletin Number 5) <a href="http://www.fda.gov/Food/FoodScienceResearch/Laboratory">http://www.fda.gov/Food/FoodScienceResearch/Laboratory</a> Methods/ucm084394.htm#v-32</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Other Excreta</td>
<td>AOAC 993.27 (For Ground)</td>
<td>Enzymatic Detection Method</td>
<td>IV</td>
</tr>
<tr>
<td>Rodent filth</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Provision</th>
<th>Method</th>
<th>Principle</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture content</td>
<td>ISO 939</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Total ash</td>
<td>ISO 939 and ISO 928</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Acid-insoluble ash</td>
<td>ISO 939 and ISO 930</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Water-insoluble ash</td>
<td>ISO 939 and ISO 929</td>
<td>Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Volatile oils content</td>
<td>ISO 939 and ISO 6571</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Extraneous matter</td>
<td>ISO 927</td>
<td>Visual examination/Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Foreign matter</td>
<td>ISO 927</td>
<td>Visual examination/Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Visible Mould</td>
<td>ISO 927</td>
<td>Visual examination</td>
<td>IV</td>
</tr>
<tr>
<td>Insect defiled/infested</td>
<td>MPM V-8 Spices, Condiments, Flavours and Crude Drugs A. General methods for spices herbs and botanicals (V 32)</td>
<td>Visual Examination/gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Dead insect, insect fragments, rodent contamination</td>
<td>ISO 927</td>
<td>Visual examination</td>
<td>IV</td>
</tr>
<tr>
<td>Live insect</td>
<td>ISO 927</td>
<td>Visual examination</td>
<td>IV†</td>
</tr>
<tr>
<td>Mammalian and or other excreta</td>
<td>Macroanalytical Procedure Manual (MPM) USFDA Technical bulletin V.41</td>
<td>Visual examination</td>
<td>IV</td>
</tr>
<tr>
<td>Piece of mace</td>
<td>ISO 927</td>
<td>Visual examination</td>
<td>IV</td>
</tr>
</tbody>
</table>
### 6. Standard for Dried or Dehydrated Chili Pepper and Paprika (CX5 353-2022)

<table>
<thead>
<tr>
<th>Provision</th>
<th>Method</th>
<th>Principles</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>ISO 939</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Total Ash</td>
<td>ISO 939 and ISO 928</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Acid-insoluble ash</td>
<td>ISO 939 and ISO 930</td>
<td>Distillation</td>
<td>I</td>
</tr>
<tr>
<td>Pungency Scoville Heat units</td>
<td>ASTA 21.3</td>
<td>Chromatography</td>
<td>IV</td>
</tr>
<tr>
<td>Colour value</td>
<td>ISO 7541</td>
<td>Sensory evaluation</td>
<td>I</td>
</tr>
<tr>
<td>Mammalian excreta</td>
<td>ISO 927</td>
<td>Visual examination followed by Gravimetry (whole)</td>
<td>I</td>
</tr>
<tr>
<td>Mould damage</td>
<td>MPM V-8 Spices, Condiments, Flavours and Crude Drugs A. General methods for spices herbs and botanicals (V 32)</td>
<td>Visual Examination (for whole)</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>AOAC 945.94</td>
<td>Visual Examination (for Ground)</td>
<td>I</td>
</tr>
<tr>
<td>Insect Damage</td>
<td>MPM V-8 Spices, Condiments, Flavours and Crude Drugs A. General methods for spices herbs and botanicals (V 32)</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Extraneous matter&lt;sup&gt;3&lt;/sup&gt;</td>
<td>ISO 927</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Foreign matter&lt;sup&gt;4&lt;/sup&gt;</td>
<td>ISO 927</td>
<td>Visual Examination followed by Gravimetry</td>
<td>I</td>
</tr>
<tr>
<td>Live insect</td>
<td>ISO 927 / AOAC 960.51</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Insect filth</td>
<td>ISO 927</td>
<td>Visual Examination</td>
<td>I</td>
</tr>
<tr>
<td>Insect fragments</td>
<td>ISO 927</td>
<td>Visual examination counting</td>
<td>I</td>
</tr>
<tr>
<td>Rodent hair</td>
<td>AOAC 978.22 (Ground chilli) AOAC 977.25 B (Ground paprika)</td>
<td>Microscopic examination</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microscopic examination</td>
<td>I</td>
</tr>
</tbody>
</table>