THIE’S RECOMMENDED MICROBIOLOGICAL SPECIFICATION
FOR TRADE IN HERBAL INFUSION RAW MATERIALS (DRY)
Issue 9, June 2015

THIE’S RECOMMENDED MICROBIOLOGICAL SPECIFICATION
FOR HERBAL INFUSIONS (DRY)
Issue 6, June 2015

THIE’S RECOMMENDED MICROBIOLOGICAL SPECIFICATION
FOR EXTRACTS OF HERBAL AND FRUIT INFUSIONS
Issue 3, June 2015
THIE’S RECOMMENDED MICROBIOLOGICAL SPECIFICATION
FOR TRADE IN HERBAL INFUSIONS RAW MATERIALS (DRY)

MICROBIOLOGICAL LIMITS

Aerobic Plate Count ≤ 10^8 / g
Yeast (Mint excluded) 1) ≤ 10^6 / g
Moulds ≤ 10^6 / g
E. coli ≤ 10^4 / g
Salmonella absent in 125 g

GUIDANCE VALUE 2)

Enterobacteriaceae ≤ 10^6 / g

SAMPLING

- 5 random samples of 50 g are to be collected from the shipment.
- The 5 samples will be mixed to a composite sample.
- The composite sample is the basis for all laboratory investigations, including salmonella.

METHODS *

Aerobic Plate Count

Yeast and Moulds
Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of yeasts and moulds – Part 2: Colony count technique in products with water activity less than or equal to 0.95 (ISO 21527-2:2008)

E. coli
Salmonella

Enterobacteriaceae

1) For mint no yeast specification is applicable due to the high natural yeast load.
2) THIE recommends monitoring Enterobacteriaceae as an additional hygienic parameter.
* Other methods can be used if they are checked against a reference method (official method and suitability tested [recovery of reference microorganisms]).
THIE’S RECOMMENDED MICROBIOLOGICAL SPECIFICATION FOR HERBAL INFUSIONS (DRY)

MICROBIOLOGICAL LIMITS

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic Plate Count</td>
<td>≤ 10⁷ / g</td>
</tr>
<tr>
<td>Yeasts</td>
<td>≤ 10⁵ / g</td>
</tr>
<tr>
<td>Moulds</td>
<td>≤ 10⁵ / g</td>
</tr>
<tr>
<td>E. coli</td>
<td>≤ 10³ / g</td>
</tr>
<tr>
<td>Salmonella</td>
<td>absent in 125 g</td>
</tr>
</tbody>
</table>

GUIDANCE VALUE ¹)

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterobacteriaceae</td>
<td>≤ 10⁵ / g</td>
</tr>
</tbody>
</table>

SAMPLING

- 5 random samples of 50 g are to be collected from the shipment.
- The 5 samples will be mixed to a composite sample.
- The composite sample is the basis for all laboratory investigations, including salmonella.

METHODS *

Aerobic Plate Count
Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 1: Colony count at 30 degrees C by the pour plate technique (ISO 4833-1:2013);

Yeasts and Moulds
Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of yeasts and moulds – Part 2: Colony count technique in products with water activity less than or equal to 0.95 (ISO 21527-2:2008)

E. coli
Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli – Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide (ISO 16649-1:2001) or Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli – Part 2: Colony-count technique at 44 degrees C using
5-bromo-4-chloro-3-indolyl beta-D-glucuronide (ISO 16649-2:2001); European Reference Method according to Regulation (EC) No 1441/2007

**Salmonella**

**Enterobacteriaceae**

**ADDITIONAL REMARK**
Herbal infusions are parts of plants which are intended for infusing with freshly boiling water and brewing for at least 5 minutes/5-x minutes.

1) THIE recommends monitoring Enterobacteriaceae as an additional hygienic parameter.
* Other methods can be used if they are checked against a reference method (official method and suitability tested [recovery of reference microorganisms]).
THIE’S RECOMMENDED MICROBIOLOGICAL SPECIFICATION
FOR EXTRACTS OF HERBAL AND FRUIT INFUSIONS

MICROBIOLOGICAL LIMITS

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic Plate Count</td>
<td>( \leq 10^3 ) / g</td>
</tr>
<tr>
<td>Yeasts</td>
<td>( \leq 10^2 ) / g</td>
</tr>
<tr>
<td>Moulds</td>
<td>( \leq 10^2 ) / g</td>
</tr>
<tr>
<td>Enterobacteriaceae</td>
<td>( \leq 10^2 ) / g</td>
</tr>
<tr>
<td>E. coli</td>
<td>absent / g</td>
</tr>
<tr>
<td>Salmonella</td>
<td>absent in 25 g</td>
</tr>
</tbody>
</table>

SAMPLING

- Per batch, resp. homogeneous unit at least 1 sample has to be taken.
- Sample size at least 100 g
- The sample is the basis for all laboratory investigations

METHODS

**Aerobic Plate Count**

**Yeasts and Moulds**
Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of yeasts and moulds – Part 1: Colony count technique in products with water activity greater than 0.95 (ISO 21527-1:2008); Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of yeasts and moulds – Part 2: Colony count technique in products with water activity less than or equal to 0.95 (ISO 21527-2:2008)

**E. coli**
**Enterobacteriaceae**

**Salmonella**

**GENERAL**
Microbiology of food and animal feeding stuffs – Preparation of test samples, initial suspension and decimal dilutions for microbiological examination – Part 1: General rules for the preparation of the initial suspension and decimal dilutions (ISO 6887-1:1999)

Microbiology of food and animal feeding stuffs – Preparation of test samples, initial suspension and decimal dilutions for microbiological examination – Part 4: Specific rules for the preparation of products other than milk and milk products, meat and meat products, and fish and fishery products (ISO 6887-4:2003)

**ADDITIONAL REMARK**
All THIE Recommended Microbiological Specifications are reviewed annually.

* Other methods can be used if they are checked against a reference method (official method and suitability tested [recovery of reference microorganisms]).