Ergot Alkaloids

Ergot alkaloids are mycotoxins produced by fungi of all members of the *Claviceps* species, most important in terms of frequency of occurrence *C. purpurea*. These fungi are able to produce a wintering body, also known as sclerotium. Such structures are mainly found on *rye*, *wheat* and *triticale*. Sclerotia contain different classes of alkaloids, the most prominent being ergometrine, ergotamine, α-Ergosine, ergocristine, α-Ergocryptine and ergocornine.

Available data indicated that adverse effects may occur in agricultural animals after intake of feed contaminated with ergot alkaloids. Ergot alkaloids exert toxic effects in all animal species, and the most prominent symptoms are feed refusal, dizziness, insufficient nursing of suckling animals due to agalactia and even abortions.

Up to the present, there is no validated analytical method – in terms of CEN/ISO - available for the analysis of ergot alkaloids. A widely used method of analysis is based on a HPLC-FLD method that makes use of an extensive and time consuming clean-up step prior to analysis.

In order to alleviate the clean up step, Romer Labs® has developed a 1-step clean up column for the analysis of ergot alkaloids. This MycoSep® 150 Ergot column contains a specifically designed package of adsorbents that allows for the convenient sample clean up prior to analysis of ergot alkaloids. The MycoSep®150 Ergot column was validated for all relevant commodities, like *wheat*, *rye*, *sorghum* and *ryegrass*.

### General structure of the 6 major ergot alkaloids

<table>
<thead>
<tr>
<th>Toxin</th>
<th>Toxin Group</th>
<th>R2</th>
<th>R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ergocornine</td>
<td>Ergopeptine</td>
<td>CH(CH₃)₂</td>
<td>CH(CH₃)₂</td>
</tr>
<tr>
<td>Ergometrine</td>
<td>Lysergic Acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergocristine</td>
<td>Ergopeptine</td>
<td>CH(CH₃)₂</td>
<td>CH₂C₆H₅</td>
</tr>
<tr>
<td>α-Ergosine</td>
<td>Ergopeptine</td>
<td>CH₃</td>
<td>CH₃CH(CH₃)₂</td>
</tr>
<tr>
<td>α-Ergocryptine</td>
<td>Ergopeptine</td>
<td>CH(CH₃)₂</td>
<td>CH₃CH(CH₃)₂</td>
</tr>
<tr>
<td>Ergotamine</td>
<td>Ergopeptine</td>
<td>CH₃</td>
<td>CH₂C₆H₅</td>
</tr>
</tbody>
</table>

### 1-step clean up

- Time for clean-up: < 30 sec
- Convenient MycoSep® format
- Stability: 18 months
- Recoveries: >90 % for all 6 major ergot alkaloids and their "inine" forms
- Repeatability: <5 %
- For wheat, rye, sorghum and ryegrass
Procedure for Ergot Alkaloid Clean up

1-step MycoSep® clean up principle

Biopure Reference Materials for Ergot Alkaloids

The use of certified reference material is one of the key issues of quality assurance during the validation process of an analytical method but also as a measure to assure the quality of analytical data during routine analysis.

Biopure provides a wide range of mycotoxin reference material which now also includes the 6 major representatives of the ergot alkaloids (ergometrine, ergotamine, ergosine, ergocristine, ergocryptine and ergocornine) + their “–inine” forms.

All Biopure reference materials are available with a certificate of analysis following ISO guide 31.

Order Information:

Clean up Column
MycoSep®150 Ergot column
Order No.: COCMY2150, Box of 25

Biopure Reference Materials:

- Ergocornine, Order No.: 002064
- Ergocorninine, Order No.: 002072
- Ergocristine, Order No.: 002065
- Ergocristinine, Order No.: 002073
- Ergocryptine, Order No.: 002066
- Ergocryptinine, Order No.: 002073
- Ergometrine, Order No.: 002067
- Ergometrinine, Order No.: LMY-090-5ML
- Ergosine, Order No.: 002068
- Ergotamine, Order No.: 002069
- Ergotaminine, Order No.: 002075

Mycotoxin Calibrant Mixture:
Mix 6 (Ergocornine, Ergocristine, Ergocryptine, Ergometrine, Ergosine, Ergotamine), Order No.: 002070

For further information, please contact:
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