Safe stool extract application on clinical chemistry platforms with BÜHLMANN fCAL® turbo and CALEX® by centrifugation

General concerns and risks

- Clogging of analyzer probes by undigested diet fibres
- Bacterial contamination of system and samples
- Turbid extracts potentially interfere with turbidity measurement
- Bacterial sample carry over
- Assay interferences to other parameters
Safe use of stool extracts by centrifugation

**Centrifugation**

1000 g  
10 min

**Elimination:**
- no undigested fibres
- reduces bacterial load
- clears turbid extracts

**Bacterial load down to urine sample levels**

<table>
<thead>
<tr>
<th>Recovery</th>
<th>% Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>fresh extract</td>
<td>100’000-2.5 Mio CFU</td>
</tr>
<tr>
<td>centrifuged (10 min; 3000g)</td>
<td>2’000-50’000 CFU</td>
</tr>
<tr>
<td>centrifuged (10 min; 1000g)</td>
<td>~3%</td>
</tr>
<tr>
<td>centrifuged (10 min; 500g)</td>
<td>95%</td>
</tr>
<tr>
<td>urine sample</td>
<td>100-10’000 CFU</td>
</tr>
<tr>
<td>urine sample stored 24 h</td>
<td>up to 100’000 CFU</td>
</tr>
<tr>
<td>urine sample UTI</td>
<td>&gt;&gt;100’000 - Mio CFU</td>
</tr>
</tbody>
</table>

**Neglectable bacterial sample carry over**

<table>
<thead>
<tr>
<th>Carry over</th>
<th>CFU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carry over to serum (2x)</td>
<td>0 CFU</td>
</tr>
<tr>
<td>Carry over to TSB medium (2x)</td>
<td>3 CFU</td>
</tr>
</tbody>
</table>

**Parameters tested:**

- IgA
- IgM
- IgG
- Bilirubin
- Total Protein
- Calcium
- Albumin
- Triglycerid (lipid)

- All controls has been measured within the expected 1SD control range
- No decline of analyzer performance was observed

Fresh fecal samples were extracted in CALEX, centrifuged and tested in fCAL turbo on Mindray BS-380. The following sample (Serum or TSB medium) were plated on TSS agar plates. Plates were incubated and CFU counted.

Fresh fecal sample were extracted in CALEX, diluted (1:400) and plated on TSS agar plates (rich medium), incubated and colony forming units per ml (CFU) counted.

After running >3000 stool extracts on a Mindray BS-380, commercial controls of serum parameters were tested. Calibrations pathological and normal control samples were run.

No special maintenance has been applied on the analyzer.