α-L-ARABINOFRANOSIDASE from Bifidobacterium sp. (Lot 91201d)

Recombinant
E-AFAM2
(3.2.1.55) alpha-L-arabinofuranosidase arabinofuranohydrolase
CAZy Family: GH43
CAS: 9067-74-7

PROPERTIES

1. ELECTROPHORETIC PURITY:
   - Single band on SDS-gel electrophoresis (MW ~ 59,404)
   - Broad diffuse band on isoelectric focusing (pI ~ 4.6)

2. SPECIFIC ACTIVITY AND LEVEL OF OTHER ACTIVITIES:
   102 U/mg protein (on wheat arabinoxylan) at pH 6.0 and 40°C.
   One Unit of α-L-arabinofuranosidase activity is defined as the amount of enzyme required to release one µmole of arabinose per minute from wheat arabinoxylan (10 mg/mL) in sodium phosphate buffer (100 mM) pH 6.0 at 40°C.

3. SPECIFICITY:
   Highly specific hydrolysis of α-1,3-linked L-arabinofuranose residues from doubly substituted D-xylosyl or L-arabinosyl residues of arabinoxylans and branched arabinans, respectively

4. RELATIVE RATES OF HYDROLYSIS OF SUBSTRATES:

<table>
<thead>
<tr>
<th>Substrate</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat Arabinoxylan</td>
<td>100</td>
</tr>
<tr>
<td>Xylanase-treated Wheat Arabinoxylan</td>
<td>90.4</td>
</tr>
<tr>
<td>Sugar Beet Arabinan</td>
<td>4.0</td>
</tr>
<tr>
<td>p-Nitrophenyl-α-arabinofuranoside</td>
<td>0.095</td>
</tr>
</tbody>
</table>

Action on pNP-substrates and polysaccharides or oligosaccharides was determined at a final substrate concentration of 2.5 mM and 3.5 mg/mL, respectively, in sodium phosphate buffer (100 mM), pH 6.0 at 40°C.

5. PHYSICOCHEMICAL PROPERTIES:
   Recommended conditions of use are at pH 6.0 and up to 50°C

6. STABILITY:
   The enzyme is supplied as an ammonium sulphate suspension in 0.02% (w/v) sodium azide and should be stored at 4°C. For assay, this enzyme should be diluted in sodium phosphate buffer (100 mM), pH 6.0. Swirl to mix the enzyme immediately prior to use.

7. REFERENCES:
Figure 1. Hydrolysis of xylanase degraded wheat arabinoxylan by A. niger and B. adolescentis α-L-arabinofuranosidase.

Xylanase degraded wheat arabinoxylan (5 mL, 2 mg/mL) was incubated with A. niger α-L-arabinofuranosidase (500 U on p-NP-α-L arabinofuranoside) in 100 mM sodium acetate buffer (pH 4.5), or B. adolescentis α-L-arabinofuranosidase (7 U on wheat arabinoxylan) in 100 mM sodium maleate buffer (pH 6.5), or C. A. niger α-L-arabinofuranosidase (500 U on p-NP-α-L arabinofuranoside) plus B. adolescentis α-L-arabinofuranosidase (7 U on wheat arabinoxylan) in 100 mM sodium acetate buffer (pH 5.0). Aliquots (50 mL) were removed at various time intervals, inactivated by incubation at 100°C for 2 min, and analysed for released L-arabinose with β-galactose dehydrogenase. Degree of hydrolysis was calculated as L-arabinose released as a percentage of total carbohydrate determined with the phenol-sulphuric acid procedure.

Figure 2. SDS-PAGE analysis of α-L-arabinofuranosidase (Bifidobacter sp.)

Electrophoresis was performed using a 10% acrylamide gel. Lane 1, low molecular weight markers (Sigma cat. no. M-3918); lane 2, 5 µg B. adolescentis α-L-arabinofuranosidase; lane 3, high molecular weight markers (Sigma cat. no. M-3788).