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<th>部門</th>
<th>Development of eco-friendly biodegradable flocculant</th>
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<tr>
<td>作者</td>
<td>Liu, Xin</td>
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<td>引用</td>
<td>第2回北海道大学サステナビリティ学生研究ポスターコンテスト = The Second Hokkaido University Sustainability Research Poster Contest. 平成22年10月24日（日）～11月5日（金） 北海道大学学術交流会館 札幌市</td>
</tr>
<tr>
<td>発行日</td>
<td>2010-10-24</td>
</tr>
<tr>
<td>URL</td>
<td><a href="http://hdl.handle.net/2115/44149">http://hdl.handle.net/2115/44149</a></td>
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<td>型</td>
<td>conference presentation</td>
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<td>メモ</td>
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**HOKKAIDO UNIVERSITY**
Development of Eco-Friendly Biodegradable Floculant

Inorganic Flocculants
- Polyacrylamide (PAM)
- Polyaluminum chloride (PAC)
- Aluminum sulfate

Biodegradable flocculant (bioflocculant)
- Microbial polymers, Chitosan
- Calcium starch, etc.

Bioflocculant Developed in Our Laboratory

Japanese patent No. 3440054

Preparation of Soy Protein-based Bioflocculant

Methylated Soy Protein (MeSP)

Soy protein

HCl

Precipitated at IEP (pH 4.5)

Methylation

24 h, at Room Temp.

Neutralization

Air-dried and pulverized

Jar Test Method (Clarity of supernatant solution)

Clarity of supernatant solution

Settling velocity of floc

Sedimentation Balance Method

Settling velocity

Floc size distribution

MeSP showed a much higher flocculation performance than that of PAC both in freshwater and seawater.

MeSP was effective over a wide pH range from pH 3 to 11 in freshwater, while PAC was effective only at around pH 6.

The flocculation efficiency of MeSP decreased with increasing seawater concentration.

Effective in seawater

High Clarity

Effective in freshwater

High Clarity

Effect of seawater concentration

Effect of pH

Effect of flocculant dosage

Effect of pH

Effect of flocculant dosage

Effect of seawater concentration

Summary