With the Help of Natural Microorganism

For Water Quality Improvement

EcoBio-Block®

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Our water purification system is using EcoBio Block (EBB), block that contains Bacillus Natto together, with aerator (MFA). This biotreatment technology with useful microorganism decomposes organic matter and purifies water quality. This system is not only for water purification, but also is the system that increases diatom and relatively controls cyanobacteria (Blue-green algae) in lakes and marshes. This technology is developed with cooperation with Kyushu University Japan and Tongji University China. Tongji University is testing the real system of MFA.
EBB has main functions

1. Decomposing Organic Matter
   - 有機物の分解
   - 1. Decomposing Organic Matter
2. Odor Removal
   - 悪臭除去
   - 2. Odor Removal

If you change 2/3 of the water in the 60L tank every week the result will be that 2 ton of water contain Ammonia and nitrate.

Immersing EBB in water Bacillus Natto will increase and purify water

EBBを水に入れると、浄化納豆菌が繁殖し、水を浄化する
**Characteristic of the Microorganism**

EBBを水に入れると、浄化納豆菌が繁殖し、水を浄化するブロックである

**Viable Temperature**  : from minus to 110°C  not active under 10°C

**Range of the effective propagable temperature** : 10°C～65°C（Most effective temperature 25°C～60°C）

**pH** : pH3～pH11（Viable in strong acidic and strong alkaline）

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**EcoBio-Block**

- **Large aquarium garden pond use EBB**
  - Weight : 400 g / piece
  - Weight including box : 450 g / box
  - Size : 90×90×80 mm
  - Box size : 95×95×90 mm

- **Garden pond, lake, marsh, water tank use EBB oct**
  - Weight : 850 g / piece
  - Size : 90×90×90 mm

- **Pond, lake marsh, water tank use EBB oct**
  - Weight : 850 g / piece
  - Size : 90×90×90 mm

- **Water channel, lake, marsh etc. use EBB wave**
  - Weight : 8.5 kg / piece
  - Size : 390×190×90 mm

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**The safety of EBB**

<table>
<thead>
<tr>
<th>Testing Institution</th>
<th>SIRIM (Malaysian National Research and Testing Center)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Standard</td>
<td>British Standard 6920 and 2.5 Test by international standards in 2000</td>
</tr>
<tr>
<td>Testing Method</td>
<td>Verify by applying EBB solution directly into mammalian cells</td>
</tr>
</tbody>
</table>

Safety has been confirmed by the acute toxicity test and the survival rate examination by Japan Food Research Center.
Overseas Construction  EBB海外工事例  
2001/4/4 Mahathir bin Mohamad, Prime Minister of Malaysia  2006 India

Domestic Construction  EBB国内工事例

Nobeoka River

Carp farming (1ton of water for 20 pieces)

Fukuoka Central Park

Fukuoka Rakusui Park

16days later
Release cyanotoxin such as Microcystin which is poisonous to human, animal.
How to increase the diatom

Technology of EBB and MFA aerator

To relatively decrease cyanobacteria and increase diatom

Feed for aquatic animals
Setting without equipment

( In case that water is not deep, sediment level is not high and there is plenty of DO )

EBBnsM

EBBwave
Construction 直敷設方式施工例

Rakusui Park Fukuoka Prefecture July 2006
楽水園 EBB設置プロジェクト 2006年7月

Before

Water 50 ton
EBB nsM150 pieces

COD 9mg/L
Ammonia 0.8mg/L

After 20days

COD 3mg/l
Ammonia 0.3mg/L
② Setting with rack

A In case there is a few sediment

B In case there is much sediment
Construction 架台方式施工例

Nanjing Presidential Office
June 2009 南京 総統府

COD 51.7mg/L → COD 30.2mg/L
BOD 16.9mg/L → BOD 9.5mg/L
Ammonia 2.84mg/L → Ammonia 1.22mg/L
Nanjing Presidential Office
Setting EBB for water purification

Nanjing presidential office
director

Under Construction

Under Construction

Interviewing by Nanjing TV
USA ( New York suburbs Potato Farm )
③ Floating island

（Using when Do in water is not plenty and water is deep enough）

With this method, the beautiful island does not only purify water, but flowers can be harvested for sale.

Hydroponics cultivation

Floating material

Nutrition absorbed by plant

EBBoct
Floating Island
Floating Island in USA (using Solar energy)
( In case there is no oxygen in the water, MFA aerator must be install. )

水中酸素濃度 ( DO)が低い場合は MFAなどの曝気装置を設置する
For the effective EBB using to control cyanobacteria, using MFA aerator is recommended.

エコバイオ・ブロックと酸素供給装置設置して、水質改善と藻類の競合により、アオコ発生を抑える。
For the effective EBB using EBBとMFAによる改善提案

To control the amount of cyanobacteria and diatom 緑藻と硅藻を競合させる
### Cyanobacteria vs. Diatom

<table>
<thead>
<tr>
<th>Cyanobacteria</th>
<th>Diatom</th>
</tr>
</thead>
<tbody>
<tr>
<td>When cyanobacteria is not much, water will be slightly green and beautiful.</td>
<td>Water is slightly brown colour, not beautiful.</td>
</tr>
<tr>
<td>But when they breed much more, toxin will be released.</td>
<td>Food for aquatic animal.</td>
</tr>
<tr>
<td>Destroying the life ecosystem in water.</td>
<td>Good for lives.</td>
</tr>
</tbody>
</table>

#### BAD ENVIRONMENT
- When cyanobacteria is not much, water will be slightly green and beautiful.
- But when they breed much more, toxin will be released.
- Destroying the life ecosystem in water.

#### GOOD ENVIRONMENT
- When cyanobacteria is not much, water will be slightly green and beautiful.
- But when they breed much more, toxin will be released.
- Destroying the life ecosystem in water.

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**The best way is to balance cyanobacteria and diatom for good environment.**

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Thank you for your attention

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