

Herstellerübersicht		HIGA	HIGA	EMIKO	EMIKO	Multikraft	Multikraft	Multikraft	BIOSA	BIOSA	MikroVeda
Urlösungen		1997	2002			EM	eMB	FKE	Terra	Animal	EM
		EM-1	EM-1	EM-1	EM-Silo	Urlösung	Abwasser	Urlösung	Biosa	Biosa	Farming
Milchsäurebakterien Preise/Liter				26,90 €		24,00 €	14,40 €	22,50 €	25,00 €	25,00 €	24,50 €
1.	Lactobacillus casei	x	x	x	x	x	x	x	x	x	x
2.	Lactobacillus plantarum	x	x	x	x	x	x	x			x
3.	Lactobacillus delbrueckii										x
4.	Lactobacillus fermentum										x
5.	Lactobacillus acidophilus								x	x	x
6.	Lactobacillus bulgaricus										x
7.	Lactobacillus buchneri										
8.	Lactococcus diacetylactis								x		x
9.	Lactococcus lactis (Streptococcus lactis)	x							x	x	x
10.	Leuconostoc pseudomesenteroides subsp. lactis biov. Diacetylactis								x	x	
11.	Leuconostoc pseudomesenteroides.								x	x	
12.	Bifidobacterium animalis								x	x	x
13.	Bifidobacterium bifidum										x
14.	Bifidobacterium longum										x
15.	Streptococcus thermophilus								x	x	x
Hefen											
1.	Saccharomyces cerevisiae (Brauhefe, Bäckerhefe)	x	x	x	x	x	x	x	x		x
2.	Bacillus subtilis var natto (Rhizosphärebakterie)										x
3.	Candida utilis	x									
Photosynthesebakterien											
1.	Rhodopseudomonas palustris	x	x	x		x	x	x	x		x
2.	Rhodopseudomonas sphaeroides	x									
Aktinomyzeten											
1.	Streptomyces albus	x									
2.	Streptomyces griseus	x									
Fermentaktive Pilzarten											
1.	Aspergillus oryzae	x									
2.	Mucor hiemalis	x									
EXTRAS											
Kräuterextrakt Biosa*									x		
Kräuterextrakt Multikraft**											
Anis, Kamille, Mädessüss und Minze, Luzerne Grünmehl										x	
PDM7 Zellulose abbauende Bakterien, Kohlenwasserstoffe abbauende Bakterien							x				
		HIGA	HIGA	EMIKO	EMIKO	Multikraft	Multikraft	Multikraft	BIOSA	BIOSA	MikroVeda
Gesamt Arten		11	4	4	3	4	7	7	11	9	15

* Biosa: Angelikawurzel, Anis, Basilikum, Bockshornklee, Brennessel, Dill, Fenchel, Ingwerwurzel, Kamille, Kerbel, Oregano, Petersilie, Pfefferminze, Rosmarin, Salbei, Schwarzer Holunder, Süßholzwurzel, Thymian, Wacholder

** Multikraft: z.B. Kümmel, Schafgarbe, Anis, Fenchel, Birkenblätter, Goldrute, Rosmarin, Pfefferminze, Eibischwurzel und Himbeerblätter

January24, 1997

CERTIFICATION

I, as the inventor of technology of Effective Microorganisms (EM), wish to certify that the solution of used in agriculture and environmental purposes have the following genera and species of microbes

Type of Microorganisms* 1	Basic Species*2
1 Lactic Acid Bacteria	Lactobacillus plantarum (ATCC8014) Lactobacillus casei (ATCC7469) Streptococcus Lactis (IFO12007)
2 Photosynthetic Bacteria	Rhodospirillum rubrum (ATCC17001) Rhodospirillum rubrum (ATCC17023)
3 Yeasts	Saccharomyces cerevisiae (IFO0203) Candida utilis (IFO0619)
4 Ray Fungi	Streptomyces albus (ATCC3004) Streptomyces griseus (IFO3358)
5 Fungi	Aspergillus oryzae (IFO5770) Mucor hiemalis (IFO8567)
6 Others	Microorganisms, that are naturally existing and combine into EM in the manufacturing process and can survive in the EM liquid of pH under 3.5. (Pathogenic microorganisms are known for their difficulty in surviving in the liquid of pH under 3.5.)

*1: "LacticAcidBacteria" , "Photosynthetic Bacteria" , and "Yeasts" can contain those found locally; "Ray Fungi" can contain those found locally that are beneficial; and "Fungi" can contain those found locally that are fermentative.

*2: In cases where some of the species are not available, they can be replaced by those of similar characteristics.

11 December, 2002

To whom it may concern,

CERTIFICATION OF EFFECTIVE MICROORGANISMS (EM) SOLUTIONS

The EM Research Organization Inc., of Okinawa, Japan wish to certify that the solution of EM for use in agriculture and environmental programs have the following characteristics.

A. Contents of Microorganisms

Type of Microorganisms	Basic Species
Lactic Acid Bacteria	<i>Lactobacillus plantarum</i> <i>Lactobacillus casei</i>
Phototrophic Bacteria	<i>Rhodospseudomonas palus tris</i>
Yeast	<i>Saccharomyces cerevisiae</i>
Others	Local beneficial microorganisms, that exist naturally in the environment, survive in the mixture of EM at pH levels under 3.5. These species combine into EM in the manufacturing process to constitute EM's dynamic and diverse microbial mixture.

Whereas during the initial phase of development of EM, 5 families, 10 genera, and 80 species of microorganisms have been cultivated, subsequent research has revealed that even by cultivating the three main groups of microorganisms, the same effects of EM are sustained, hence at present cultivation of EM are focused on the above mentioned main microorganisms group.

In circumstances where some of the species are not available, they can be replaced by those of similar characteristics in the same genera.

All microbes found in EM are present in all ecosystems, and are primarily used in the food industry. They are non-toxic to humans, animals, plants, and the environment.

The solution of EM, therefore, is not harmful and does not contain genetically modified organisms.

We hereby certify that all EM made in future, until notified otherwise, will contain only these organisms at the time of being made available for use and be of the same quality.

Please be informed that this information is the most recent released by our organization. Hence it invalidates all earlier certificates issued by our organization.