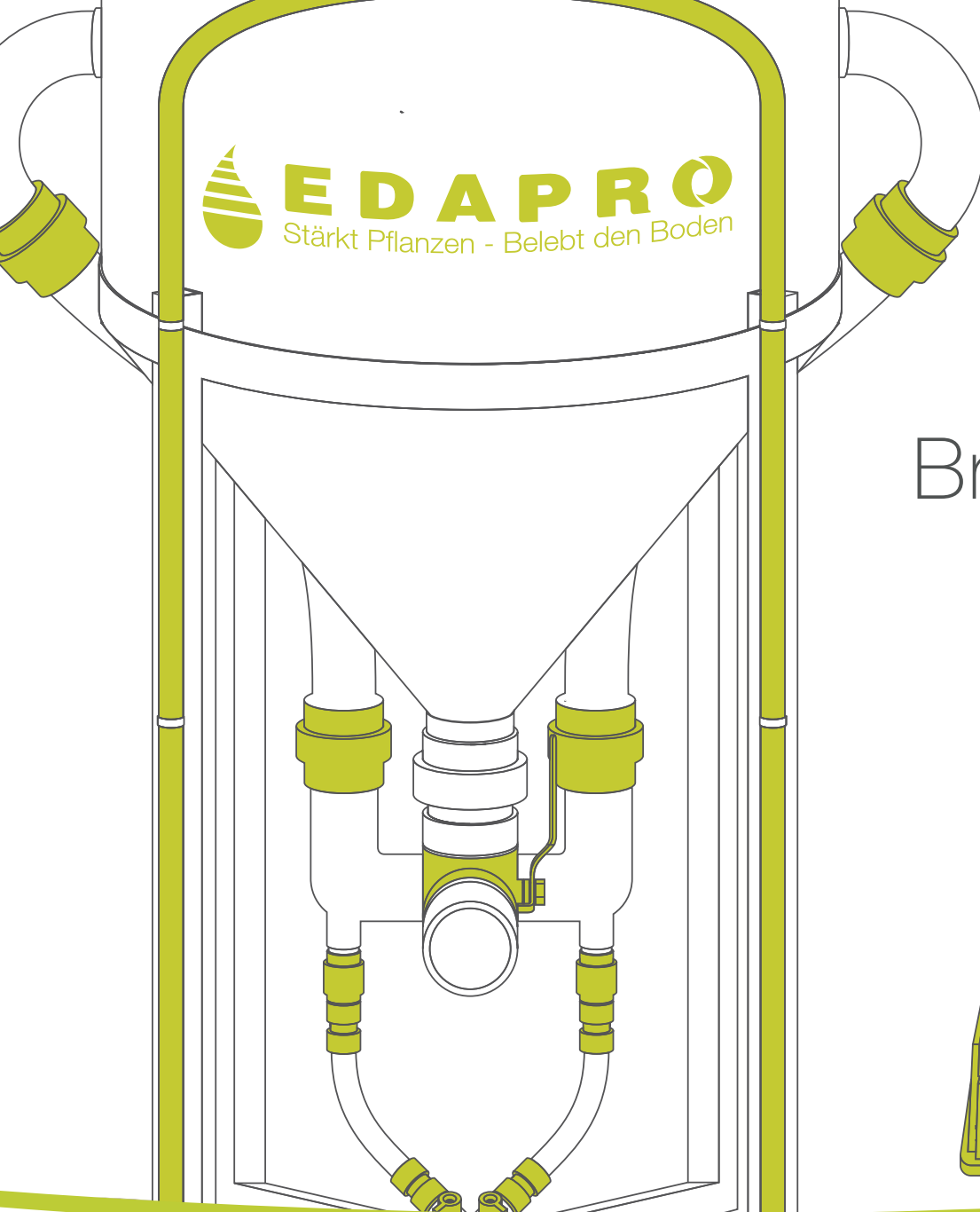




Operating manual

Brewing systems *EdaLife*

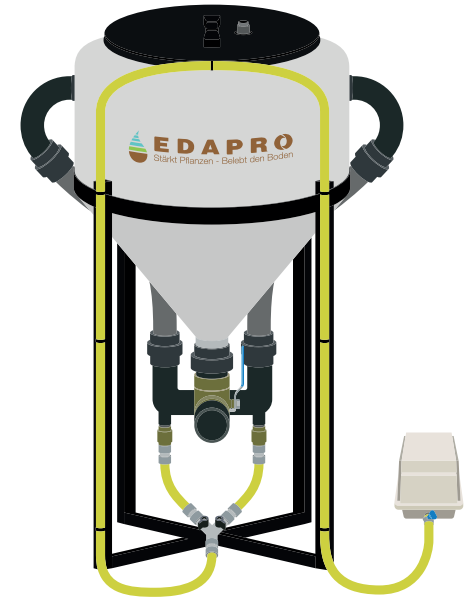
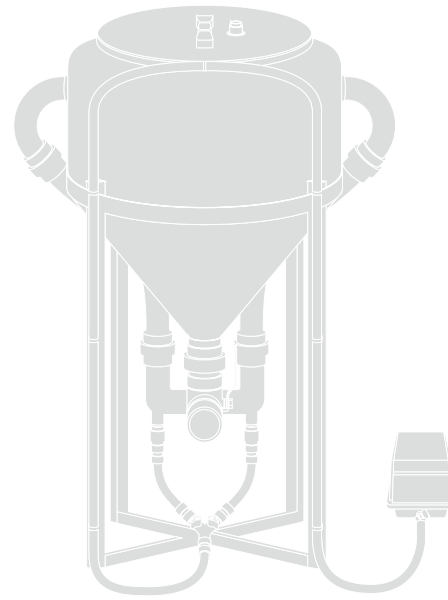
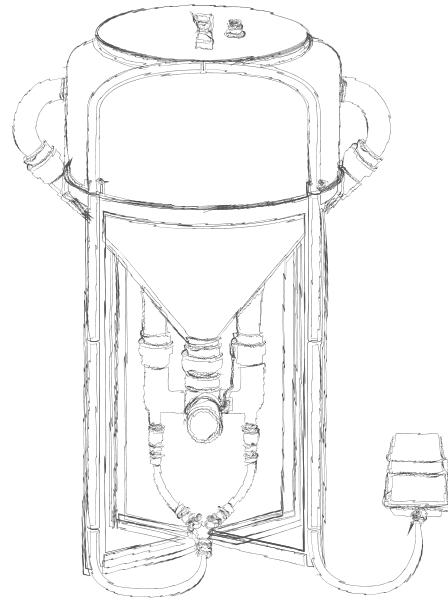
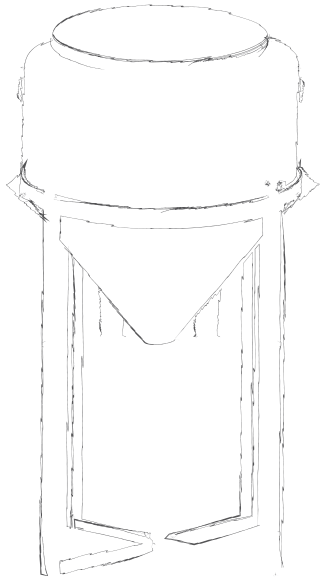
V60 / V120 / V200 / V400



We are pleased that you have chosen the **EDAPRO** compost tea brewing system. With the brewing system you have purchased a quality product for the production of high-quality compost tea. **EDAPRO** Compost Tea is an actively aerated compost tea of the highest quality with beneficial plant-supporting microorganisms.

Please read these operating instructions carefully before carefully before using the brewing system.

CAUTION The brewing system may only be used, maintained and repaired by persons who are familiar with the operating instructions.



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EDAPRO product range

Name	Product	Description
Brewing system	EdaLife	Bioreactor for the production of microbiologically active plant fortifiers (compost tea)
Microbial substrate	EdaBiom	Specially inoculated compost according to CMC process
Microbial food	EdaBiom+	Food for the multiplication of microorganisms during the brewing process
Compost tea		Microbiologically active plant fortifier produced with the EDAPRO brewing system
Analyses	Plant sap analysis	Leaf sap analysis reveals nutrient surpluses and deficiencies before symptoms can be observed
	Microscopy	Determination and interpretation of the microbiology of soil and compost for training purposes
	Pfeiffer's circular chromatography	Round filter chromatography test for the determination of soil condition and micro-biological soil activity
Quality control		Advice on the topics of compost, compost tea and humus management

Technical data

Product	V60	V120	V200	V400
Volume (l)	60	120	200	400
Voltage (V)	230	230	230	230
Frequency (Hz)	50	50	50	50
Power input (W)	47	86	130	260
Operating pressure (bar)	0.11	0.15	0.18	0.18
Air flow rate at operating pressure (l/min)	45	80	120	240
Diameter (mm)	460	580	580	950
Height (mm)	680	1000	1250	1500
Mesh size (mm)	0.4	0.4	0.4	0.4
Water connection	19 mm / 3/4" hose			

General

EDAPRO GmbH is constantly working on the further development of the brewing systems; we reserve the right to make changes to the scope of delivery in terms of form, technology and equipment. Therefore, no claims can be derived from the information and illustrations in these operating instructions.

Manufacturer

EDAPRO GmbH
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6017 Ruswil

info@edapro.ch
www.edapro.ch

Intended use

The brewing system (EdaLife) V60 / V120 / V200 / V400 is exclusively suitable for the production of EDAPRO compost tea according to the instructions of EDAPRO GmbH. The quality of the compost tea can only be guaranteed with the use of the microbial substrate (EdaBiom) and the microbial food (EdaBiom+) in the quantities adapted to the brewing system. To ensure effectiveness, all parameters must be observed before, during and after the brewing process.

Description

The V60 / V120 / V200 / V400 brewing system is designed to produce high quality, actively aerated compost tea. The „motor“ of the brewing system is an air pump which continuously pumps air into the lower area of the riser pipes. Due to the ingenious design, an optimal circulation of the water body is achieved. The mixture of water, microbial substrate (EdaBiom) and microbial food (EdaBiom+) is lifted by the riser tubes and gently returned to the tank. The resulting vortex guarantees gentle mixing and creates an optimal environment for the efficient multiplication of beneficial microorganisms. During the 24 - 48 hour brewing process, the microorganisms are multiplied exponentially.

Scope of delivery

- Brewing system (EdaLife)
- Air pump
- Filter bag
- Reinigungsschlauch
- Cleaning hose
- Cleaning brush
- Operating instructions

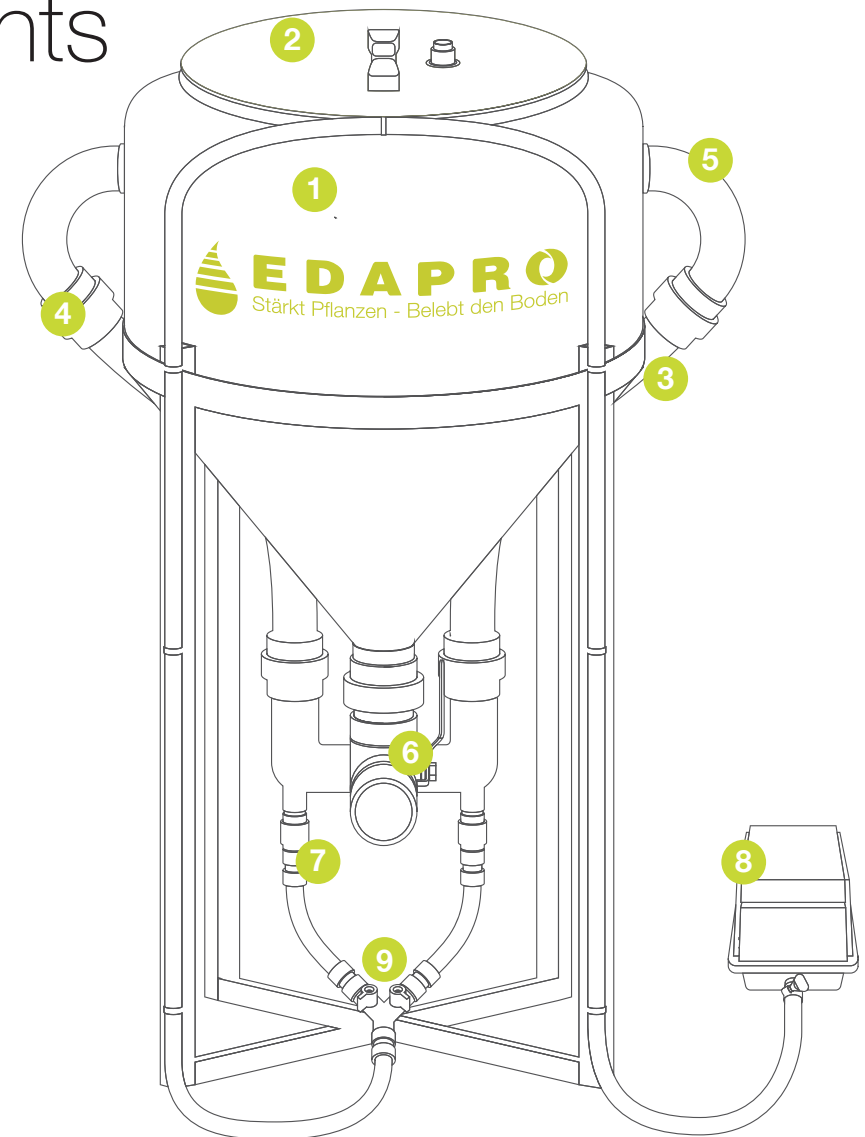
Optional accessories

- Suction pump
- Mobile base for the EdaLife brewing system

Brewing system components

Key components of the brewing system (EdaLife)

- 1 Container
- 2 Lid with integrated cleaning ball
- 3 Riser pipe
- 4 Screw fitting
- 5 Riser pipe - outlet
- 6 Ball valve
- 7 Air connection /quick coupling with retaining strainer
- 8 Air pump with filter and air hose
- 9 Stopcocks



Difference between soil and foliar application

The EDAPRO compost tea can be used in many ways due to its high diversity of beneficial microorganisms. Depending on the application, one speaks of soil or foliar application.

Soil application

For an area-wide distribution of the compost tea, dilution with water is possible. The degree of dilution depends on both the application quantity recommended by EDAPRO and the application technique. This is usually in the range of 1:3 - 1:10. With irrigation systems, even a dilution of 1:50 can be achieved. If the compost tea is diluted, it is recommended to apply compost tea more often. We will be happy to advise you on dilution and application intervals according to your personal situation.

Foliar application

A foliar coverage of 75% should be aimed for. The compost tea should not be diluted more than 1:3 with water when applying the leaves. Our microbial substrate (EdaBiom) is free from any human pathogens. This is ensured by repeated checks by EDAPRO. Nevertheless, for fresh vegetables as well as fruit and berries, we recommend that the last compost tea application be carried out no less than 30 days before harvesting, in order to exclude even the smallest, theoretical residual risk. (only for crops).

Brewing process - Safety instructions

No changes may be made to the brewing system (EdaLife) - safety can no longer be guaranteed as a result. EDAPRO GmbH accepts no liability for personal injury or damage to property resulting from the use of non-approved add-on parts. Only put the brewing system into operation if all components are undamaged. Pay particular attention to the tightness of the brewing container and the riser pipes.

Safety instructions

- The brewing system (EdaLife) may only be used by persons who are familiar with the function and dangers as well as with the operating instructions. Read these instructions completely and carefully.
- The user is responsible for accidents or hazards that occur towards other persons or their property.

Starting up the EdaLife brewing system

- Only operate the brewing system (EdaLife) when it is completely assembled.
- Set up the brewing system on a level, firm and free surface.
- Set up the brewing system in a shady, preferably room-temperature location. Direct sunlight should be avoided.
- Place the air pump in a splash-proof location and put it into operation..
- Protect plug connections from splash water.
- Always operate the brewing system in a cleaned state.

Application rates compost tea

Application rates per brewing process

The following table gives an overview of the required quantities of microbial substrate and microbial food per application. The quantities depend on the model of the brewing system:

Brewing system (L Volumen)	Microbial substrate (litres)	Microbial food (litres)
<i>EdaLife</i> V60	1.8	0.30
<i>EdaLife</i> V120	3.6	0.60
<i>EdaLife</i> V200	6	0.65
<i>EdaLife</i> V400	12	1.00

Application quantities

The quantities given are guide values. The application quantity is designed for the colonisation of the microorganisms on the leaf and soil.

Field of application	Amount of compost tea, from (litres/ha)	Intervall (Appl./year)
Lawn care	250	7
Agriculture	80	4
Horticulture	150	6
Landscaping	250	3
Viticulture	150	6

- The application rate is crop-specific and should be logistically sensible for the farm in terms of application.
- The application rates listed in the table are minimum rates for successful colonisation of the microorganisms. Higher application rates improve the effectiveness.

Brewing process - **EDAPRO** Compost Tea

1. Ensure that the ball valve is in brewing position (handle points to the right towards the riser pipe).
2. Connect the air hoses to the air connection/quick coupling and start the air pump. Check that the air flows out of both riser tubes.

If there is a blockage in the retention strainer, this can be cleared by lightly knocking against the retention sieves. If this does not help, the retention sieves must be unscrewed and cleaned.

3. Fill the container with 18 - 25 °C warm water. Optimum temperature: 20 - 22 °C. For foliar application, make sure that the water is soft with a water hardness below 7 °fH. The bicarbonates bind the nutrients and thus cannot be absorbed by the leaf. Rainwater or water from an osmosis system is best suited.
4. For optimal water circulation and undisturbed vortex formation, the tank must be filled to the lower edge of the riser pipe outlet. The riser pipe outlets must always point in the same flow direction so that a vortex can form in the tank.
5. If chlorine is added to the water used, the brewing system must be started up 30 minutes before filling with the micro-

bial substrate (EdaBiom) so that the chlorine, which is harmful to the microbes, can evaporate.

6. Adjust the stop cocks (parallel to each other, facing forwards). With the adjustment of the stopcocks, the uniform water discharge from the riser pipe outlets into the tank can be set.
7. For homogeneous distribution, first add the microbial food (EdaBiom+) to the container.
8. Gently and slowly add the microbial substrate (EdaBiom). The required application rates can be found in chapter „Application rates compost tea“ and also on edapro.ch.

At the beginning, blockages can easily occur, so it is important to check whether water is being pumped out of both riser pipe outlets. In case of blockage, check the retention sieves (point 2).

9. Close the lid of the container. The temperature during the brewing process is optimally 20 - 22 °C. The brewing process is completed after 24 - 48 hours.

Filling and preparation

Attention: Do not switch off the air pump of the brewing system (EdaLife) during filling.

1. For filling, position the intended container in front of the outlet and set the ball valve to the filling position (turn the handle upwards).
2. For use as a foliar application or for an irrigation system, the particles of the EDAPRO compost tea can be removed with the filter bag provided and blockages prevented.
3. The compost tea can be filled or pumped directly into the applicator with a water pump.

Filling without pump

Set the ball valve to the filling position and fill the finished compost tea into suitable containers.

Filling with water pump

Place water pump in the container and pump out compost tea.

4. As soon as the compost tea has been filled, the air pump can be switched off..
5. The compost tea can be fed to the plants undiluted or up to a dilution of 1:10 with water, in irrigation systems up to 1:50. As the nutrients are bound in the bacteria there is no danger of giving too much compost tea. The plants cannot be harmed. The same also applies to foliar application.

Application - Factors to consider

Temperature

Low temperatures result in longer brewing times. If the night temperatures fall below 10 °C, a heater for the brewing system can be ordered from EDAPRO. So that the microorganisms are not exposed to too strong a temperature shock during application, it is always worth brewing at the ambient temperature.

Weather / time of application

Direct sunlight (UV light) should be avoided during the entire brewing process as well as during application, as the compost tea can evaporate after application and the microorganisms can be damaged. The application should ideally take place in the evening or under overcast skies. Do not apply foliar sprays if rain is forecast within 24 hours. It is best to apply after heavy rainfall.

Do **not** apply under the following conditions:

- In case of rain or much dew on the leaf
- On very hot days (leaf temperature above 26°C)
- In strong winds

Application with field sprayer

If the compost tea is applied with a field sprayer, the following points must be observed:

- With the field sprayer, make sure that the sieve and nozzles are not smaller than 0.4 mm. With a smaller sieve size, useful microorganisms from the **EDAPRO** compost tea do not reach the leaf and soil..
- The optimum working pressure of the field sprayer is a maximum of 2 bar. Sensitive microorganisms are killed at a higher working pressure.
- If crop protection products were applied with the same field sprayer, the field sprayer must be thoroughly washed with water before use with **EDAPRO** Compost Tea.

Durability

Due to the high oxygen demand of the microorganisms, the **EDAPRO** compost tea is used immediately after the brewing process and can be stored for up to 4 hours. If the compost tea is stored for more than 4 hours without oxygen supply, it is not recommended to use it..

Application - Factors to consider

Choice of nozzles for the field sprayer

Basic: Nozzles normally used for foliar application are recommended for soil application. For foliar application, nozzles normally used for liquid fertiliser application are recommended.

The filter bag supplied by EDAPRO has a mesh size of 40 mesh.

For the suction filter, a larger mesh unit (M) must be selected than the nozzle filter / hat screen recommended by the nozzle manufacturer. EDAPRO recommends using a nozzle filter / hat strainer with 25 mesh (M), which dictates the choice of nozzles.

As an example, the spraying table from Lechler:
https://www.lechler.com/fileadmin/media/datenblaetter/agrar/lechler_agrar_spritztabelle_feldbau_wasser.pdf

The following nozzle types can be used according to Lechler's offer:

- Dark red: ID, IDK, LU, ST/SC
- Grey: ID, IDK, LU, ST/SC

Further information on the correct choice of nozzles according to the crops planted can be found here:

https://www.lechler.com/fileadmin/media/kataloge/pdfs/agrar/DE/lechler_broschuere_feldbau.pdf

Filtering

Suction filter / prefilter 32 mesh, colour code: Red:

<https://www.kramp.com/shop-ch/de/1013955/4606549/795815/3242002030+Filtereinsatz+rot+--+32+Mesh>

The pressure filters must be equipped with a 32 mesh filter (colour code red). In practice, however, a pressure filter is often not used.

Overview of the measuring units:

Mesh	Milimeter	Micron
25	0.707	707
32	0.595	595
40	0.4	400
50	0.297	297

Cleaning the brewing system

Cleaning must be carried out immediately after each brewing process. It is essential to start the air pump during cleaning. A brush may be necessary to remove all organic residues (cause biofilms).

1. Set the ball valve to the filling position (turn the handle upwards). Attach water hose to lid with integrated cleaning ball and flush with water.
2. Remove biofilm at the upper edge of the brewing system with the brush.
3. Thoroughly rinse the empty container and the riser with the water hose..
4. Set ball valve to cleaning position (turn handle to the left towards the outlet). Connect water hose to air connection/ quick couplings and flush with water. Flush the riser pipes individually until clear water comes out of the outlet.
5. Set the ball valve to the filling position (turn the handle upwards) and drain the residual water in the brewing system.

Maintenance and storage advice

Container

Check the tank of the brewing system (EdaLife) regularly for leaks. High-pressure cleaning of the container is not recommended for cleaning. Check the tightness of the pipe fittings. Treat the ball valve regularly with silicone spray to ensure the smooth running of the moving component..

Air pump

The air pump has an air filter that must be checked annually. If there is a lot of dirt, the filter must be replaced. Replacement air filters can be obtained from EDAPRO GmbH.

Storage of the microbial substrate

The ideal storage location is a damp cellar, or a place protected from direct sunlight under a compost fleece. The microbial substrate must not dry out and must be watered if necessary so that the microorganisms are not damaged or become inactive..

Shelf life: 3 months

Storage of the microbial food

A place with low temperature fluctuations is suitable for storing microbial food. Seal well to prevent moisture from reaching the food.

Shelf life: 12 months

Troubleshooting

The brewing system is clogged.

If the brewing system is clogged, the material has usually settled in the lower area at the transition from the tank to the ball valve. If this is the case, a whirlpool can be created manually in the tank with the help of a rod to whirl up the material. The air pump must be in operation.

Clogging of the brewing system can have the following causes have:

- The brewing system was filled with microbial substrate (EdaBiom) and microbial food (EdaBiom+) before the air pump was started up or was fed into the vortex too quickly during filling.
- The brewing system was filled with a third-party substrate that was not sieved to 10 mm.
- The air supply does not work properly.

The water only comes out of one riser outlet.

The pressure can be adjusted by means of the stopcocks. If, for example, no water comes out of the left riser pipe, the right stopcock can be closed until the water comes out of both riser pipes equally (due to the airlift principle, the water comes out of the riser pipe outlets like a surge).

FAQ - Frequently asked questions

Does water quality matter?

Yes, water of drinking water quality without chlorine, rainwater or osmosis water is suitable for the production of EDAPRO Compost Tea. For foliar application, make sure that it is soft water with a water hardness below 7 °fH.

Is it possible to overdose with EDAPRO Compost Tea?

Negative effects of overdosing have not been observed so far. Since the nutrients are bound in the bacteria, there is no danger of administering too much compost tea.

Can the brewing system only be filled halfway?

No. The brewing system should always be operated fully so that the aeration works well. If only half the amount of compost tea is needed, half the amount of microbial substrate and microbial food can be used. This compost tea should be considered a 1:1 dilution at the end of the brewing process.

Why is the EDAPRO compost tea only have a shelf life of 4 hours?

The beneficial microorganisms in the compost tea need oxygen. During the production process, the organisms are strongly multiplied. As soon as aeration is stopped, the oxygen contained in the solution is quickly used up. If the oxygen content falls below a certain range (<5 mg/L), anaerobic organisms establish themselves, which can harm the plant. Due to the high oxygen demand, the compost tea must be used immediately after the brewing process and can be kept for up to a maximum of 4 hours.

Can I use any compost as microbial substrate for making compost tea?

EDAPRO compost tea only contains the microorganisms that were present in the microbial substrate (EdaBiom) at the beginning. Due to this fact, the plant-strengthening effect of the EDAPRO compost tea can only be guaranteed with the microbial substrate EdaBiom from EDAPRO.

FAQ - Frequently asked questions

Replaces EDAPRO Compost Tea fertiliser?

No. Although EDAPRO compost tea does contain nutrients, these are negligible in the nutrient balance.

An essential component of compost tea are the useful microorganisms that stimulate metabolic processes and make nutrients contained in the soil or substrate available to plants (mineralise). If there is a nutrient deficit, fertiliser must be applied. Compost tea, on the other hand, does have a foliar fertilising effect.

Does the use of EDAPRO compost tea exclude the use of pesticides?

No. High disease pressure must be treated acutely and curatively. After the use of chemical pesticides, the application of EDAPRO compost tea makes sense. EDAPRO Compost Tea works preventively by strengthening the plants and their natural defences. In this way, the cause of the disease is treated to prevent its symptoms.

How should I best store the microbial substrate (EdaBiom)?

The microbial substrate (EdaBiom) should be stored at a stable ambient temperature without fluctuations. The optimal temperature range is between 15 - 20°C. The microbial substrate must be protected from drying out (55 - 65% humidity). Rooms with high humidity, such as a storage cellar, are suitable for this. If drying out nevertheless occurs, the microbial substrate should be moistened. The microbial substrate should not be stored for longer than 3 months.

How do I store my brewing system?

Before storing the brewing system, clean it. The cover of the brewing system should be closed after cleaning to and thus prevents entries into the brewing system.

Up to what temperature can I apply compost tea?

The compost tea can be applied up to a soil temperature of 4 °C. At a lower temperature the microorganisms are inactive.

FAQ - Frequently asked questions

What is the difference between EDAPRO products and products with effective microorganisms (EM)?

The term „effective microorganisms“ (EM) was trademarked by Teruo Higa in 1970. EM is a mixture of about 80 different species of microorganisms that are cultivated in the laboratory. The microorganisms from EM prefer a low-oxygen environment. In contrast, compost tea has an average of 500,000 different useful microorganism species. Because of the high diversity, the microorganisms in EDAPRO compost tea can quickly adapt to different locations or when the climate changes.

A healthy, regenerating soil is always well aerated and is home for the most part to oxygen-loving organisms. In order to specifically promote these beneficial microorganisms, the compost tea is permanently aerated during the production process.

Can EDAPRO compost tea be mixed with liquid fertiliser?

Liquid fertilisers can be added to the EDAPRO compost tea. Under certain circumstances, however, negative interactions between fertiliser salts and microorganisms may occur. A recommendation can therefore only be given with reservations.

How long can the compost tea be brewed?

Normally, the compost tea is brewed for 24-48 hours. If the compost tea cannot be applied during this time, do not switch off the air pump but extend the brewing time. If the brewing system has a heater, it should be switched off. The maximum brewing time should not exceed four days, otherwise the microbial diversity will decrease.