



PIKOVSKAYA'S BROTH (MEDIUM)

TM 545

INTENDED USE

For cultivation of phosphate solubilizing microorganisms in commercial production of Biofertilizer

COMPOSITION

Ingredients	Gms/Ltr
Dextrose	10.000
Calcium phosphate	5.000
Yeast extract	0.500
Ammonium sulphate	0.500
Potassium chloride	0.200
Magnesium sulphate	0.100
Manganese sulphate	0.0001
Ferrous sulphate	0.0001

PRODUCT SUMMARY AND EXPLANATION

Phosphate-solubilizing microbes play fundamental roles in biogeochemical phosphorus cycling in natural and agricultural ecosystems. Phosphate-solubilizing microbes can transform the insoluble phosphorus to soluble forms HPO_4^{2-} and H_2PO_4^- by acidification, chelation, exchange reactions and polymeric substances formation. Therefore, the use of phosphate-solubilizing microbes in agricultural practice would not only offset the high cost of manufacturing phosphatic fertilizers but would also mobilize insoluble phosphorus in the fertilizers and soils to which they are applied. Application of the phosphate solubilizing microbe *Bacillus*, *Enterobacter*, *Pseudomonas*, *Aspergillus*, *Trichoderma* and *Glomus* around the roots of plants, in soils and in fertilizers has been shown to release soluble phosphorus, promote plant growth and protect plants from pathogen infection. Therefore, removal of phosphorus is prerequisite for restoration of water quality.

Pikovskaya (1948) was the first person to develop a medium for the detection of PSB using calcium phosphate and dextrose based on the visual detection of clear zones.

PRINCIPLE

Phosphate as calcium phosphate is present in the medium. Dextrose acts as energy source. Different salts and yeast extract supports the growth of organisms.

INSTRUCTION FOR USE

1. Dissolve 16.3 grams in 1000 ml distilled water.



2. Gently heat if necessary to dissolve the medium completely.
3. Sterilize by autoclaving at 15 psi (121°C) for 15 minutes.
4. Dispense as desired.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder: White to light yellow homogeneous free flowing powder

Appearance of prepared medium: Whitish with flocculent precipitate, opaque solution

INTERPRETATION:

Culture characteristics observed after incubation period of 40 - 48 hours at 35 ± 2°C (and spot inoculated on Pikovskaya's Agar).

Microorganisms	ATCC	Inoculum (CFU/ml)	Growth of the colonies and Phosphate solubilization
<i>Aspergillus brasiliensis</i>	16404	Point inoculation	Luxuriant, clear zone around the colony with phosphate solubilization
<i>Pseudomonas aeruginosa</i>	27853	50-100	Luxuriant, clear zone around the colonies with phosphate solubilization
<i>Bacillus subtilis</i>	6633	50-100	Good, moderately clear zone around the colonies with phosphate solubilization
<i>Pencillium notatum</i>	10108	50-100	Luxuriant, Positive reaction, clear zone surrounding the colony

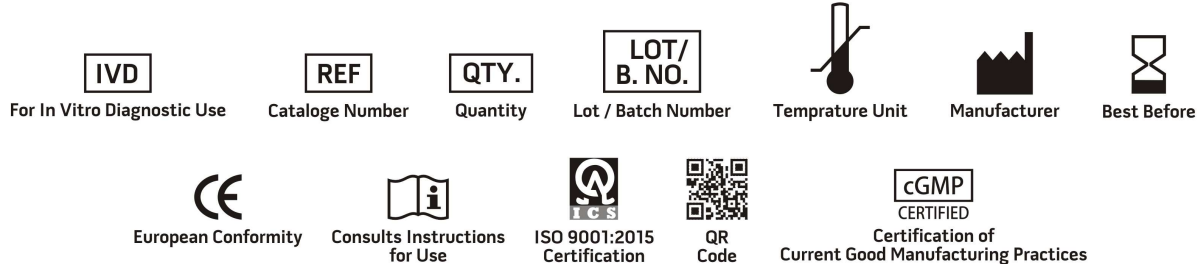
STORAGE & STABILITY

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

REFERENCES

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NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.