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Indian Standard

CODE OF PRACTICE FOR PREPARATION AND APPLICATION OF BLUE-GREEN ALGAE AS BIOFERTILIZER IN SOILS

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Soil Quality and Improvement Sectional Committee had been approved by the Food and Agriculture Division Council.

The microbial denizens of soil play an important role in nutrient mobilization. The nitrogen fixing blue-green *algae* (BGA) which commonly occur in moist waterlogged fields form an important component of the soil micro-organisms and have been held responsible for the spontaneous fertility of rice soils. Waterlogged conditions, high humidity and temperature and diffused light under the crop canopy in paddy fields favour their proliferation. However, algalization effect may vary depending on the region, rate of growth, stress compatibility and sporulating capacity.

BGA grow well in neutral to alkaline soils having pH range 6.5 to 8.5. They may also be grown in acidic soils after proper liming. The BGA inoculation increases the availability of nitrogen in the soil. They add organic matter through the oxygen, liberating process of photosynthesis and their polysaccharidic sheath binds the soil particles. These activities improve the physical and chemical properties of the soil which is reflected in the form of reduced compaction and oxidizable matter content. The hormone like substances excreted by the algae, enable the crop plants to utilize more of the applied nutrients. They show pronounced supplementation effect at lower levels of fertilizer nitrogen. Use of BGA may add 15 to 25 kg nitrogen/hectare/season.

The strains of BGA have to be selected on the basis of their stress compatibility, growth and nitrogen fixing capacity response to temperature. Strains suitable for defined habitats and requirements can be developed through screening of the natural populations. Studies conducted under different agroclimatic conditions have shown. That forms like *Aulosiru, Culothrix, Scytonemu* and *Tolypothrix* are better suited for upland and rainfed paddies. Perpetually waterlogged rice crop responds better to inoculation by *Anabaena, Nostoc, Cylinadrospermum* and *Hapalosiphon.*

A need was, therefore, felt to formulate Indian Standard on the subject stipulating code of practice for preparation and application of blue-green algae as biofertilizer in soils for the benefit of processers and the users of the product. In preparation of this standard considerable assistance has been derived from the National Facility for Blue-green Algal Collections, Indian Agricultural Research Institute, New Delhi.

1 SCOPE

This standard prescribes the code of practice for preparation and application of blue-green algae as biofertilizer in the soils.