



**MP Biomedicals, LLC.**

**29525 Fountain Parkway  
Solon, Ohio 44139**

**Telephone: 440/337-1200**

**Toll Free: 800/854-0530**

**Fax: 440/337-1180**

**mailto:biotech@mpbio.com**

**web: www.mpbio.com**

# ImmunO™

**Cellulase Y-C  
(from *Trichoderma viride*)**

**Catalog #: 32096**

**Lot #: Q1241**

**Description:** This enzyme retains very high filter paper decomposing activity and showed an appreciable amount of hemicellulase. Actually this enzyme removed cell walls from plant tissues in shorter incubation period without loss of biological activity of the materials.

**Appearance:** A light brown powder.

**Activity:** Greater than 16,000 u/g filter paper decomposing activity (as determined by modified Toyama's assay method).

**Optimum pH:** 4.0 - 5.0

## Optimum

**Temperature:** 50<sup>o</sup>-60<sup>o</sup>C

**Use:** For protoplast preparations.

**Storage:** Store at 2-8<sup>o</sup>C.

**References:** 1. H. Suzuki, T. Abe, M. Urade, K. Nisizawa and A. Kuroda, Nature of the macerating enzymes from *Rhizopus* sp. **J. Ferment. Technol.** **45**, 73-85, 1967.

2. H. Suzuki, N. Henmi, K. Nisizawa and A. Kuroda, Further studies on the nature of macerating enzymes from *Rhizopus* sp. **J. Ferment. Technol.** **45**, 1080-1088, 1967.

3. N. Toyama, Applications of cellulases in Japan, In Cellulases and Their Applications (A Symposium) p 359-390 (American Chemical Society, 1969).

4. Y. Tomita, H. Suzuki and K. Nisizawa, Chromatographic patterns of cellulase components of *Trichoderma viride* grown on the synthetic and natural media, **J. Ferment. Technol.** **46**, 701-710, 1968.

5. I. Takebe, Y. Otsuki and S. Aoki, Isolation of tobacco mesophyll cells in intact and active state, **Plant & Cell Physiol.** **9**, 115-124, 1968.

6. Y.P.S. Bajaj, Protoplast isolation, culture and somatic hybridization, In Applied and Fundamental Aspects of Plant Cell, Tissue and Organ Culture, J. Reinert and Y.P.S. Bajaj, eds, p 467-496, Springer-Verlag, Berlin, 1977.

7. T. Nagata and I. Takebe, Cell wall regeneration and cell division in isolated tobacco mesophyll protoplasts, **Planta** 92, 301-308, 1970.
8. T. Nagata and I. Takebe, Plating of isolated tobacco mesophyll protoplasts on agar medium, **Planta** 99, 12-20, 1971.
9. L. Takebe, G. Labib and G. Meichers, Regeneration of whole plants from isolated mesophyll protoplasts of tobacco, **Naturwissenschaften** 58, 318-320, 1971.
10. M. Suzuki and I. Takebe, Uptake of double-stranded bacteriophage DNA by isolated tobacco leaf protoplasts, **Z. Pflanzenphysiologic** 89, 297-311, 1978.
11. I. Takebe and Y. Otsuki, Infection of tobacco mesophyll protoplasts by tobacco mosaic virus, **Proc. Nat. Acad. Sci. USA** 64, 843-848, 1969.
12. M. Suzuki, I. Takebe, S. Kajita, Y. Honda and C. Matsui, Endocytosis of polystyrene spheres by tobacco leaf protoplasts, **Exptl. Cell Res.** 105, 127-135, 1977.
13. I. Takebe, The use of protoplasts in plant virology, **Annual Review of Phytopathology** 13, 105-125, 1975.
14. K.N. Kao and M.R. Michaytuk, A method for high frequency intergeneric fusion of plant protoplasts, **Planta** 115, 355-367, 1974.
15. G. Melchers, M.D. Sacristan and A.A. Holder, Somatic hybrid plants of potato and tomato regenerated from fused protoplasts, **Carlsberg Res. Commun.** 43, 203-218, 1978.
16. M. Nishimura, D. Graham and T. Akazawa, Isolation of intact chloroplasts and other organelles from spinach leaf protoplasts, **Plant Physiol.** 58, 309-314, 1976.
17. E. Galun, Plant protoplasts as physiological tools, **Annual Review of Plant Physiology** 32, 237-266, 1981.
18. L.C. Fowke and O.L. Gamborg, Application of protoplasts to the study of plant cells, **International Review of Cytology** 68, 9-51, 1980.

*Christina Marotta*

Approved by: *Christina Marotta*  
Quality Control Director

Control #