

## ISOLATION AND IDENTIFICATION OF *Rhizoctonia* SPP. FROM CULTIVATED SOIL IN MAZANDARAN PROVINCE\*

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### Abstract

During 2007-2008, soil samples were collected from the 10-15 cm depth of the soil profiles at the fields and orchards in Mazandaran province. Using baiting methods, 121 isolates of *Rhizoctonia* spp. were recovered, of them 101 and 20 isolates were belonged to multinucleate (MNR) and binucleate (BNR) *Rhizoctonia* spp., respectively. Among the MNR isolates, 7 ones were assigned to *R. solani* anastomosis group one (AG-1), 38 isolates to AG-2, 5 isolates to AG-4, 3 isolates to AG-5, 13 isolates to AG-6, 11 isolates to AG-9, 3 isolates to AG-11 and 21 isolates to WAG-Z (*R. zeae*). Among the BNR isolates, 15 and 3 isolates were identified as AG-K and *R. ramicola*, respectively. AG group determination was not sufficient to identify two BNR isolates. For this reason we named them as BNR-1 and BNR-2.

**Keywords:** *Rhizoctonia*, Anastomosis group, Soil fungi, Biodiversity.

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## References

- ABBASI, M. and ALIABADI, F. 2009. **The List of Fungi Recorded.** In: Proc. of 12<sup>th</sup> to 18<sup>th</sup> Iran. Plant Protec. Cong. (1995-2008). Elm va Honar Press, Tehran.
- AGHAJANI, M. A. 2000. **Identification of *Rhizoctonia* and *Rhizoctonia*-like fungi on Poaceae in central region of Mazandaran, Iran.** MSc. Thesis Submitted to Tarbiat Modares University, 159 p.
- AGHAJANI, M. A. ALIZADE, A. RAHIMIAN, H. and SAFAIE, N. 2006. Occurrence and the disease caused by *Rhizoctonia zeae* in Iran. **Iran. J. Plant Pathol.** 43: 87-97. (In Farsi With English Summary)
- BANDONI, R. J. 1979. Safranin as a rapid nuclear stain for fungi. **Mycologia** 71: 873-874.
- BOYSEN, M., BORJA, M., DEL MORAL, C, SALAZAR, O. and RUBIO, V. 1996. Identification at strain level of *Rhizoctonia solani* AG-4 isolates by direct sequence of asymmetric PCR products of the ITS regions. **Curr. Genet.** 29: 174 – 181.
- CARLING, D. E., LEINER, R. H. and KEBLER, K. M. 1987. Characterization of a new anastomosis group (AG-9) of *Rhizoctonia solani*. **Phytopathology** 77: 1609-1612.
- CUBETA, M. A. and VILGALYS, R. 1997. Population biology of the *Rhizoctonia solani* complex. **Phytopathology** 87: 480-484.
- ERSHAD, D. 2009. **Fungi of Iran.** 3<sup>rd</sup> ed., Iranian Research Institute of Plant Protection, Tehran.
- HOMMA, Y., YAMASHITA, Y. and ISHII, M. 1983. A new anastomosis group (AG-7) of *Rhizoctonia solani* Kühn from Japanese radish field. **Annu. Phytopathol. Soc. of Japan** 49: 184-190.
- KIM, W. G., CHO, W. D. and LEE, Y. H. 1994. Anastomosis groups and cultural characteristics of *Rhizoctonia solani* isolates from crops in Korea. **The Korean j. Mycol.** 22: 309-324.
- KUNINAGA, S., YOKOSAWA, R. and OGOSHI, A. 1978. Anastomosis grouping of *Rhizoctonia solani* Kühn isolated from non-cultivated soils. **Nippon Shokubutsu Byori Gakkaiho** 44: 591-598.
- LEINER, R. H. 1991. Characterization of a *Rhizoctonia* (*Waitea circinata*) isolated from Alaska agricultural soils. University of Alaska, Fairbanks, 68pp.
- OGOSHI, A. 1972 a & b. Grouping of *Rhizoctonia solani* Kühn with hyphal anastomosis. **Annals of the Phytopathol. Soc. Japan** 38: 117-122.
- OGOSHI, A. 1972 b. Some characters of hyphal anastomosis groups in *Rhizoctonia solani* Kühn. **Nippon Shokubutsu Byori Gakkaiho** 38: 123-129.
- OGOSHI, A. 1976. Studies on the grouping of *Rhizoctonia solani* Kühn with hyphal anastomosis and on the perfect stages of these groups. **Bull. Natl. Inst. Agric. Sci. Ser. C (Plant Pathol. Entomol.)** 30: 1-63.
- OGOSHI, A. 1985. Anastomosis and intra specific groups of *Rhizoctonia solani* and binucleate *Rhizoctonia*. **Fitopathol. Bras.** 10: 371-390.
- OGOSHI, A. 1987. Ecology and Pathogenicity of Anastomosis and Intraspecific Groups of *Rhizoctonia Solani* Kühn. **Annu. Rev. Phytopathol.** 25: 125-143.
- OGOSHI, A. 1996. The genus *Rhizoctonia*. Pp. 1-9. In: B. Sneh. (eds.), *Rhizoctonia Species: Taxonomy, Molecular Biology, Ecology, pathology and Disease Control.* Kluwer Academic Pub., London.
- RAHIMIAN, H. 1986. Occurrence of aggregate sheath spot of rice in Sari. **Proc. 8<sup>th</sup> Plant Protec. Cong. Isfahan, Iran.** 93(AbSt.).
- RAHIMIAN, H. 1989. Occurrence of aggregate sheath spot of rice in Iran. **J. Phytopathol.** 125: 41-46.
- RYKER, T. C., and GOOCH, F. S. 1938. *Rhizoctonia* sheath spot of rice. **Phytopathology** 28:233-246.
- SNEH, B., BURPEE, L. and OGOSHI, A. 1991. **Identification of *Rhizoctonia* species.** APS Press., St Paul, Minnesota, U.S.A. 133 P.
- TU, C. C., ROBERTS, D. A. and KIMBROUGH, J. W. 1969. Hyphal fusion, nuclear conditions and perfect stages of three species of *Rhizoctonia*. **Mycologia** 61: 775-783.
- VOORHEES, R. K. 1934. Sclerotial rot of corn caused by *Rhizoctonia zeae* n. sp. **Phytopathology** 24: 1290-1303
- WATANABE, B. and MATSUDA, A. 1966. Studies on the grouping of *Rhizoctonia solani* Kühn pathogenic to upland crops. **Appointment Exprim. (Plant and Insect Pest, in Japanese)** 7: 1-131.