Karabulut OA, Arslan U, Ilhan K, Yagdi K (2006) The effect of sodium bicarbonate alone or in combination with a reduced rate of mancozeb on the control of leaf rust [Puccinia triticina] in wheat. Canadian Journal of Plant Pathology-Revue Canadienne de Phytopathologie 28(3):484-488.

Abstract

In vitro experiments showed that sodium bicarbonate (SBC) was effective in inhibiting urediniospore germination and germ-tube elongation of Puccinia triticina, the causal agent of leaf rust on wheat. In vitro efficacy of SBC at 0.006 and 0.012 mol/L in inhibiting the spore germination was 64.1% and 100%, respectively. Two field experiments were conducted to investigate the efficacy of SBC alone or in combination with reduced rates of mancozeb in inhibiting leaf rust on wheat (Triticum aestivum). The results showed that the application of SBC at 0.12 or 0.24 mol/L, sprayed twice at 2-week intervals, significantly reduced the disease severity compared with a water-treated control in two experiments. In the first field experiment, the SBC treatment at 0.12 mol/L reduced disease severity from 11.4% to 2.2% that of the water-treated control. The efficacy of SBC was comparable with that of tebuconazole. Combining SBC with a reduced rate of mancozeb (25% of label rate) did not improve the efficacy of the SBC treatment in the first field experiment. In pot experiments conducted under controlled conditions, SBC at 0.12 and 0.24 mol/L significantly reduced disease severity. The efficacy of SBC at 0.24 mol/L was higher than that of the 0.12 mol/L treatment and caused no adverse effect on quantity and quality of wheat.