

Title Field applications of improved formulations of *Candida sake* CPA-1 for control of *Botrytis cinerea* in grapes

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Abstract

There is increasing interest in the use of biological control agents (BCAs) to replace synthetic fungicides. The aim of this study was to evaluate the effectiveness of combining different formulation strategies on the establishment, survival, persistence and efficacy of *Candida sake* CPA-1 applied in the field in order to control *Botrytis cinerea* in grapes. Different formulations of *C. sake* cells were applied at flowering, pea sized berries, veraison and before harvest. In 2005, heat adapted or non-adapted fresh cells of *C. sake* were tested. In 2006, these same treatments were tested but, in this case, the *C. sake* cells were also formulated in an isotonic solution. The compound Fungicover® (FC) an edible coating was evaluated as a potential additive for *C. sake* treatments. Spray applications of different formulations of *C. sake* resulted in colonisation of bunches under field conditions and when combined with FC, *C. sake* had significantly higher survival rates (up to 50% higher) compared with *C. sake* without additive FC. Formulation of *C. sake* cells in an isotonic solution combined with FC resulted in *Botrytis* spp. control similarly than fungicide treatment. The potential of *C. sake* for biocontrol of *Botrytis* bunch rot of grapevine has been demonstrated. FC has a beneficial effect on the BCA, improving the persistence of *C. sake* cells on the host and its efficacy to levels comparable to fungicide treatment. It is possible to broaden the spectrum of use of BCAs using different formulation strategies and to thereby develop practical uses under field conditions.