Title The shelf life and effectiveness of granular formulations of *Metschnikowia pulcherrima* and *Pichia guilliermondii*yeast isolates that control postharvest decay of citrus fruit

Author Pervin Kinay and Mehmet Yildiz

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Abstract

Our overall objectives were to prepare commercially acceptable formulations of the postharvest biological control yeasts, *Metschnikowia pulcherrima* and *Pichia guilliermondii*, which have a long storage life and to determine the effectiveness of these formulations to control postharvest green and blue moulds on citrus fruit. Yeasts, grown on a cane molasses-based medium, were combined with talc or kaolin carriers and various adjuvants and the viability of yeast in 12 formulations was determined over a 6 month period. Formulation no. 11, containing talc, sodium alginate, sucrose, and yeast extract, for both yeasts had a significantly higher viable yeast cell content over a 6 month storage period. Among the formulations, three formulations (formulations no. 5, 6, and 11) were selected for additional in vivo testing because they had higher levels of viability amongst yeast cell populations during storage and were easier to resuspend remained in suspension more easily. These formulations were tested on Satsuma mandarin and grapefruit to control green and blue moulds. Formulations no. 5, 6, and 11 for both yeasts effectively controlled green mould, while only formulation no. 11 with either yeast isolate *M. pulcherrima* (isolate M1/1) or *P. guilliermondii* (isolate P1/3) effectively controlled both blue and green moulds.