

Title Response of gladiolus (*Gladiolus* spp) plants after exposure corms to chitosan and hot water treatments

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Abstract

The state of Morelos, Mexico has gradually become an important producer of gladiolus. Some preconditioning treatments of corms are empirically done causing uneven emergence and low quality of flowers. In this investigation, before planting, gladiolus corms var. 'Blanca Borrego' were dipped in chitosan (chitosan reagent and commercial chitosan Biorend[®]), in hot water at various temperatures and in treatments combined with Biorend[®] at 1.5% and hot water. Results indicated that the most influenced variables were corm germination, number of flowers per spike, number of cormlets and vase life. Overall, the commercial product Biorend[®] at 1.5% accelerated corm emergence in approximately 4 days, the number of flowers increased by 2–7 and the vase life extended for 3 days. The number of cormlets was also duplicated. Corms dipped in the commercial chitosan Biorend[®] at 1.5% at different intervals of time were not greatly affected except for the emergence and number of cormlets. However, for this experiment there were significant effects on the number of leaves and flowers because of the interactions between chitosan and the immersion time. The temperature of 55 °C affected plant development because emergence was delayed by 6 days; and there were less number of leaves, flowers and cormlets. On the other hand, the incidence of *Fusarium oxysporum* in naturally infected corms was 0% at temperatures of 55 °C and 50 °C. Immersion times (0, 10, 15 and 20 min) in hot water at 50 °C did not show significant effects on plant development and vase life. Corms dipped in Biorend[®] at 1.5% and hot water at 50 °C accelerated their emergence for about 1–7 days, the number of flowers increased by two, extended the storage life for 1–3 days and increased the number of cormlets. The integration of these two treatments -Biorend[®] and hot water- might be a good option for increasing the gladiolus plant quality and vase life.