Abstract

Maize (Zea mays L.) is the most important staple crop in Kenya with the small holder farming systems accounting for about 75-80% of the total production. Most of the small-scale farmers plant locally adapted landraces and there are concerns about the possible contamination of these through geneflow from novel varieties, including the transgenics. The survival of pollen after dehiscence is an important factor affecting the geneflow. Studies were conducted to investigate the duration of pollen viability in two locations in western Kenya - Eldoret and Kakamega, representing the highland tropical and moist mid-altitude/transitional zones, respectively. Pollen was collected at dehiscence and exposed as a thin layer in the open air for 0 (control), 15, 30, 60, 120 and 240 minutes. Pollen viability was assessed by measuring the seed set after pollination, scoring percentage pollen color change and percentage pollen germination. Pollen maintained viability for 120 minutes after dehiscence in Eldoret (T=23-240C; RH=45-55%; Ø=-109 to -82 MPa) and for 240 minutes in Kakamega (T=25-270C; RH=68-83%; Ø=-53 to -26 MPa). The differences in pollen longevity were attributed to the differences in atmospheric water potential between the two locations. The results suggest that the likelihood of genetic contamination of the landraces through geneflow from novel varieties is higher in the moist mid-altitude zones than in the highland tropical zones of Kenya.