

玉米子粒發育過程中多元胺含量的變化
Changes in Polyamines Contents of Developing Kernels of Maize (*Zea Mays* L.)

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中文摘要

本研究以玉米單交品種(台農 1 號及台農 351 號)為材料,探討子粒發育過程中多元胺含量的變化。結果顯示兩供試品種的子粒發育期間,自由態 putrescine (PUT)的含量似有兩個高峰期,分別在 R1 及 R3 生長期。自由態 spermidine (SPD)的含量以 R1 生長期較高,爾後下降;而自由態 cadaverine (CAD)及 spermine (SPM)的含量則始終很低。結合態多元胺含量變異很大,唯其生長期間的含量變化類似於自由態者。自由態 PUT 的第二個含量高峰期所處的 R3 生長期,正值子粒乾物質直線充實期之起始階段,而且以胚乳為其主要存在部位。由以上的試驗結果,似有藉由改變供源—積儲關係,來進一步探討玉米子粒乾物質蓄積過程中多元胺含量變化的必要。

關鍵字: 玉米; 多元胺; 子粒乾物質蓄積

Abstract

Two hybrids, Tainung 1 and Tainung 351, were used to explore the changes of polyamines contents in developing kernels of maize. Of both hybrids, the contents of free putrescine (PUT) in the developing kernels gave two peaks, which appeared at R1 and R3 stages, respectively. The contents of free spermidine (SPD) were high at R1 stage and then dropped down thereafter. The contents of free cadaverine (CAD) and spermine (SPM) kept very low. The contents of conjugate polyamines varied widely among samples taken at the same stage, but their time courses were similar to those of free polyamines. The second peak of PUT contents coincided with the beginning of the linear phase of kernel dry matter accumulation, and the PUT was found mainly in the endosperm. These results suggested that free PUT might correlate to the processes of kernel dry matter accumulation. It is necessary to examine the effects of sink and source manipulation on PUT contents of maize kernel.

Key words : Maize; *Zea mays* L.; Polyamine; Kernels dry matter accumulation