基于压痕加载曲线的谷物籽粒硬度性能测定技术 Testing of Grain Hardness Based on Indentation Loading Curve

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摘 要： 使用500N微机控制材料试验机，利用压痕加载曲线，进行了用针尖压入法测定谷物籽粒硬度的试验研究，测得豌豆、蚕豆、大米、绿豆、小麦、扁豆以及玉米在不同组成部位、不同含水率时的硬度值在2～75MPa范围内。研究表明，试验加载速度在0.25～2.00mm/s范围内、针尖压入深度在0.25～1.50mm范围内时对试验结果无明显影响，而针尖锥度与籽粒硬度存在定量关系。 By using the 500N microcomputer control material testing machine, based on the load-depth curve, the hardness of the grains was experimentally studied adopting needlepoint pressing-in method. The peas, horsebeans, rice, mung beans, wheat, lentils as well as corn at different moisture and component parts were tested and analyzed, with the measured hardness range of 2～75MPa. The research showed that at the loading speed in 0.25～2.00mm/s and depth of indentation in 0.25～1.50mm, no obvious effect appears in the test results. The taper of needlepoint and the value of grain hardness have a quantitative relation in the measurement.

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