

PHYSIOLOGICAL RESPONSES TO WATER STRESS
IN SUGARCANE SPECIES AND VARIETIES

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Abstract Studies on the physiological response to water stress in 7~10 varieties (species) of sugarcane were carried out. Drought-resistant varieties (species) had a higher rate of bleeding and higher rate of water losing in detached leaves. The Plasmalemma permeability was increased under the water stress induced by PEG. The permeability was smaller in drought-resistant varieties (species). Under soil drought stress conditions, drought-resistant varieties (species) accumulated comparatively higher free proline content than those in the less drought-resistant varieties. Cellular bound water content was increased and higher content of cellular bound water was found in drought-resistant varieties (species). The correlation between the change of amylase activity and drought resistance was not very definite.

Key words Sugarcane; Water stress; Plasmalemma permeability; Free proline; Bound water; Amylase



我校近期通过鉴定的三项科技成果简介

- 1 由林学院张景宁副教授主持完成的“柑桔黄龙病快速诊断研究”于1992年12月16日通过了由广东省科委和省农委联合组织的成果鉴定。鉴定专家认为：本研究获得柑桔黄龙病病原类细菌分离，人工培养通过木虱及环剥接种成功，人工体外培养黄龙病病原类细菌成功乃国内外首创。通过人工培养柑桔黄龙病类细菌作为抗原，建立的诊断柑桔黄龙病的酶标定位法和酶联吸附免疫法经生产应用，能准确快速早期诊断柑桔黄龙病，其成果处于国内领先水平。
- 2 由农业生物系徐风彩副教授主持完成的“烟草超氧化物歧化酶(SOD)的提取制备技术研究”于1993年2月27日通过了由广东省高等教育局组织的成果鉴定。SOD具有抗肿瘤、延缓衰老、抗辐射、抗炎症等作用，在医药、临床、日化、保健上的应用日益广泛。专家认为：本研究以烟草为原料采用生物化学方法提取SOD处于国内领先水平，建议有关部门尽快组织中试，投入生产。
- 3 由畜牧系韩刚副教授主持完成的“猪肉保鲜剂的研制与应用”于1993年5月10日通过广州市科委组织的成果鉴定。鉴定专家认为：以生姜汁为主要原料研制的猪肉保鲜剂，能使处理后的鲜猪肉比非处理品的一级鲜度保鲜时间延长3~5倍。该保鲜剂属国内外首创，保鲜效果处于国际先进水平，并具有良好的社会效益和经济效益，建议推广使用。