水稻中稗草光谱分析与识别

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关键词： 水稻 光谱分析 杂草识别

摘 要： 利用ASD光谱仪在室内分别测量了水稻、稗草在350～2500nm波段内的反射率。以各波长点处的反射率与绿色反射峰处（555 nm）的反射率的比值为变量，运用SAS统计软件的STEPDISC过程筛选能够区分作物和杂草的变量；判别模型中加入筛选得到的变量，利用DISCRIM过程进行判别分析。实验结果表明，利用4个波长点比率395/555、535/555、705/555和1105/555可有效地从水稻中识别出稗草，其识别率为100%。红边内波长点705nm处的反射率与555nm处反射率的比值对模型贡献最大。The spectral reflectance of rice and barnyard-grass was determined in the range from 350 to 2500nm using the Analytical Spectral Device Full Range FieldSpec Pro (ASD) on laboratory. The discrimination analysis was carried out with the statistical software package SAS. The spectral reflectance at the green peak (555nm) was chosen as denominator, and wavelength ratios were calculated as variables to discriminate. Wavelength ratios were selected using the STEPDISC procedure. With the selected variables, the discrimination models were developed using the DISCRIM procedure in SAS. Four wavelength ratios including 395/555, 535/555, 705/555 and 1105/555, were utilized to gain good classification performance (100% accuracy) for distinguishing barnyard-grass from rice. The ratio of spectral reflectance at 705nm in the red edge to spectral reflectance at 555nm contributes more to the discrimination model.

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