Identification of couchgrass (cynodon spp) cultivars for the turf industry using gel electrophoresis of leaf perosidase enzymes

S. Till

Australian Turfgrass Research Institute. Concord West 2138 N.S.W

Genetic variation of common couchgrass (C.dactylon) provides selections that can cater for the specific demands of bowling greens, golf courses, racecourses, tennis courts and playing fields on turf. There has recently been on increase in the number of selections and Fl hybrids of C.dactylon X C.transvaalensis available for use resulting in increased interest in growing and utilizing these grasses. Therefore it has become necessary to develop a positive method of identification of cultivars for marketing and research purposes.

Methods

Leaf material was ground up and peroxidases extracted at pH 8.3.These extracts were centrifuged and the superrate collected as sample. Moving boundary electrophoresis as described by Chrambach and Jovin (1) was performed. The gel was stained using Ophenylene diamine in citrate phosphate buffer (2) and bands appear in approx. 30 minutes.

Results and discussion

At least 15 leaf peroxiolase isoenzyme bands are present with one highly acidic band being common to all varieties. The difference between varieties is best seen in the less acidic peroxidase isoenzymes.

The result of this work has been the development of a series of 'maps' of the commercially-available and experimental couchgrasses using stocks at the A.T.R.I. The development of the 'maps' allows verification of the species quickly and accurately. Accurate identification can now be used for the marketing and selling of the grasses as the buyer and seller can have greater confidence in the validity of the cultivor. It also allows better communication of information between researchers and thus the amount of information available on each grass. It is hoped that in time it will help in identifying those grasses we wish to import by enabling us to accurately identify the grasses already present in Australia.

1. Chrambach, A., and Javin, T.M. 1983. Electrophoresis: 4 190-204.

2. Engvall, E. 1980. Methods in Enzymology 70: 419-439