Genetic characterisation of *Ribes nigrum*, *Ribes rubrum* and *Ribes grossularia* using molecular markers

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Introduction

Conservation of valuable genetic resources and their use in the development of improved crops is dependent upon comprehensive germplasm collections. Effective usage and maintainence of germplasm collections is enhanced by the characterisation of genetic variation within these collections. Genetic variation found in three *Ribes* crop species was investigated using molecular markers.

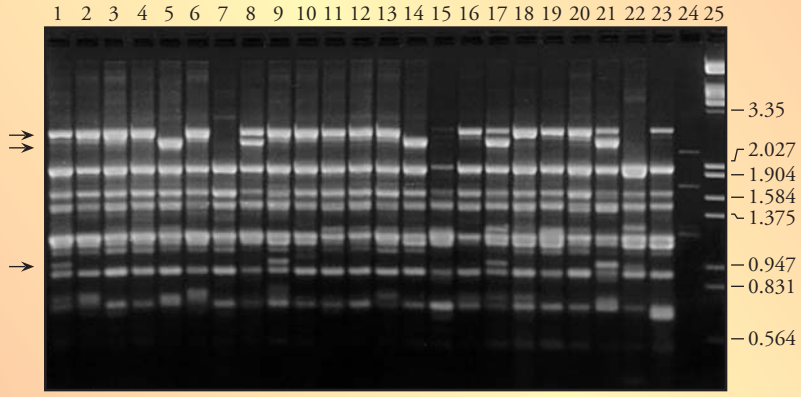
Methods

Twenty one genotypes of *Ribes nigrum* were fingerprinted using RAPD markers. Thirteen *Ribes rubrum* genotypes and three wild relatives of redcurrant were fingerprinted using anchored microsatellite markers. Twelve geontypes of *Ribes grossularia* were fingerprinted using a combination of RAPD and anchored microsatellite markers.

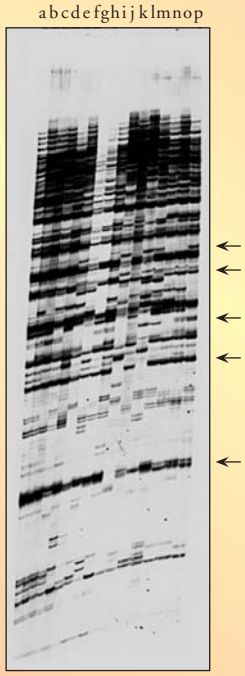
Results

All genotypes of *Ribes nigrum* and *Ribes rubrum* were sucessfully fingerprinted. However three *Ribes grossularia* varieties, 'Leveller' (Lv), 'Whinham's Industry' (WI) and 'Whitesmith' (Ws), had identical profiles, although they were screened with a total of 60 markers.

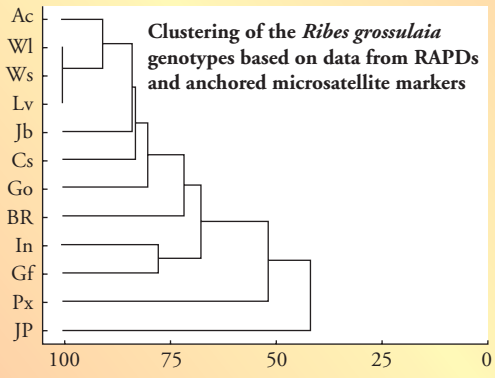
RABD markers detected in *Ribes nigrun* genotypes



Polymorphisms detected using anchored microsatellite primers in *Ribes rubrum* germplasm



Clustering of the *Ribes grossulaia* genotypes based on data from RAPDs and anchored microsatellite markers



Summary of the marker results

	Marker type	Total amplicons	Total polymorphisms
R. nigrum	**RAPD**	**210**	**54**
R. rubrum	**Anc. Microsatellite**	**184**	**80**
R. grossularia	**RAPD**	**93**	**28**
R. grossularia	**Anc. Microsatellite**	**136**	**32**

Conclusions

Both types of molecular markers were effective in fingerprinting the *Ribes* germplasm and investigating genetic variation within each species. Future work will evaluate whether other marker types such as AFLP will distinguish 'Leveller', 'Whinham's Industry' and 'Whitesmith'. In addition, work to link molecular markers to important traits is in progress.