

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 maintenance 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.

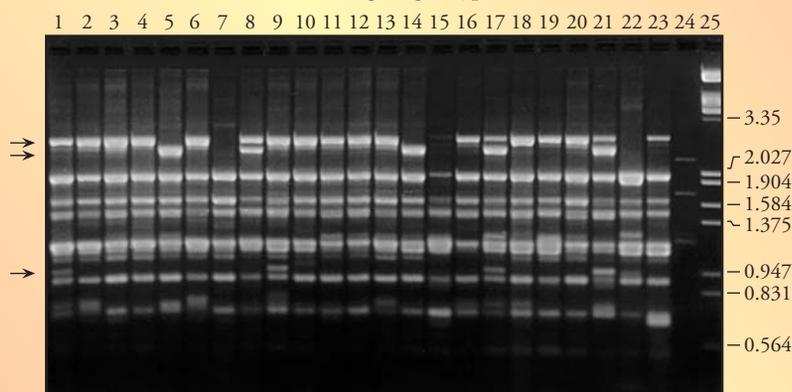
Methods

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 genotypes of *Ribes grossularia* were fingerprinted using a combination of RAPD and anchored microsatellite markers.

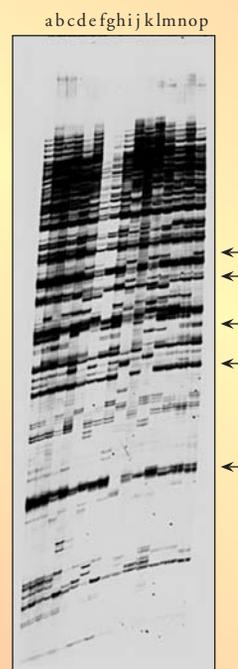
Results

All genotypes of *Ribes nigrum* and *Ribes rubrum* were successfully 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.

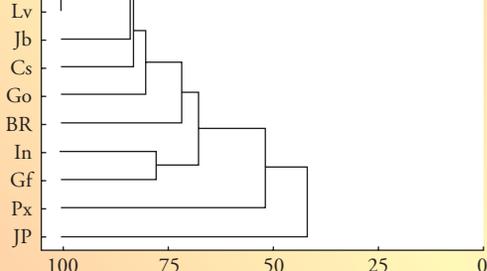
RABD markers detected in *Ribes nigrum* genotypes



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



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



Summary of the marker results

	Marker type	Total amplicons	Total polymorphisms
<i>R. nigrum</i>	RAPD	210	54
<i>R. rubrum</i>	Anc. Microsatellite	184	80
<i>R. grossularia</i>	RAPD	93	28
<i>R. grossularia</i>	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.