



### *Effects of environment and variety on phenolic composition*

Environment had greater effects on phenolic composition than variety. However, some large differences were also due to varietal effects. Both these effects were greatest in LS, followed by LB and smallest in ST phenolics. This suggests that a judicious selection of varieties based on leaf phenolics has great potential for improving the nutritive value of sorghum crop residues.

### *Genotype × environment interactions*

Most varieties gave strong environment × genotype interactions with respect to their phenolic composition. However, two bird resistant (BR) varieties seemed to have more stable compositions in different environments: in Figure 1 the Ikinyaruka variety clusters at two sites (A1 and B1) and X/35 : 24 clusters at three sites (A5, B5, C5).

## Discussion

### *Suggestion for a strategy to screen varieties*

Differences between LS of BR and non-BR varieties are great at some but not all sites. Therefore, relatively fast measurements of red pigments (absorption measurements at 490 nm of aqueous ethanol extracts — Reed, Tedla and Kebede, 1987) should establish first if such differences are important at a given site. If this is the case, then varieties with a stable pattern of phenolic synthesis need to be identified. Such 'stable' varieties can then be selected further for improved digestibilities.

### *Conclusions*

Strong genotype × site interactions were found for the phenolics of sorghum leaves. There is some evidence that two varieties yielded much more stable phenolic compositions; these merit further study. Sorghum varieties with stable performance across environments are needed before being recommended to subsistence farmers. Alternatively, different genotypes may have to be selected for different environments.

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