

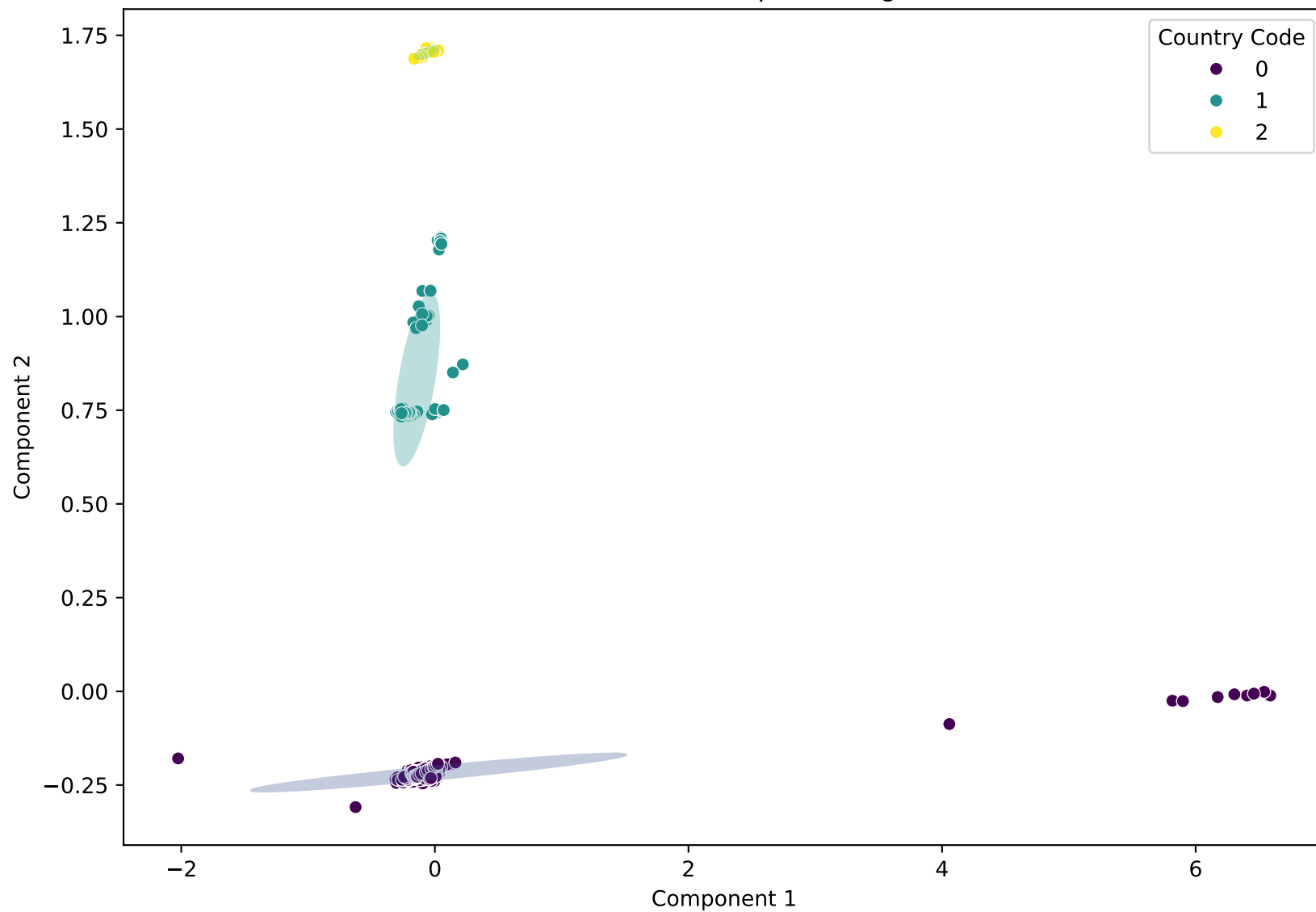
Clustering Analysis Report

This report evaluates different preprocessing methods and their effectiveness in clustering FTIR spectral data.

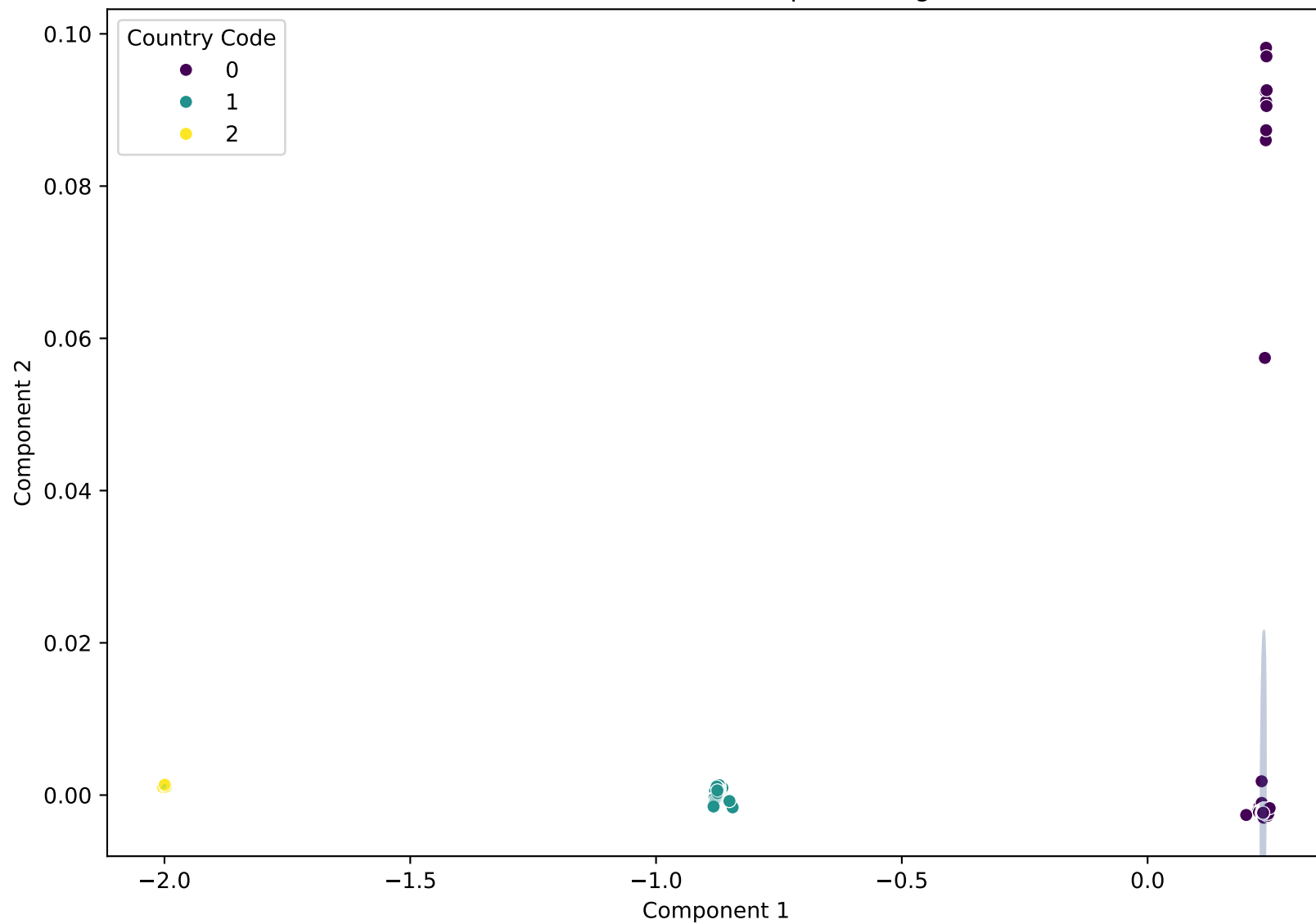
Evaluation Metrics

Preprocessing Method	Explained Variance Ratio	Silhouette Score
UV-SNV	[0.7442217 0.2557783]	-0.0959196400283056
UV-MSC	[0.7442217 0.2557783]	-0.09591964002830554
UV-1-der	[9.99381129e-01 6.18871257e-04]	0.99358901476872
UV-2-der	[9.99929423e-01 7.05768906e-05]	0.9957407692057948
Par-MSC	[0.7442217 0.2557783]	-0.0959196400283055

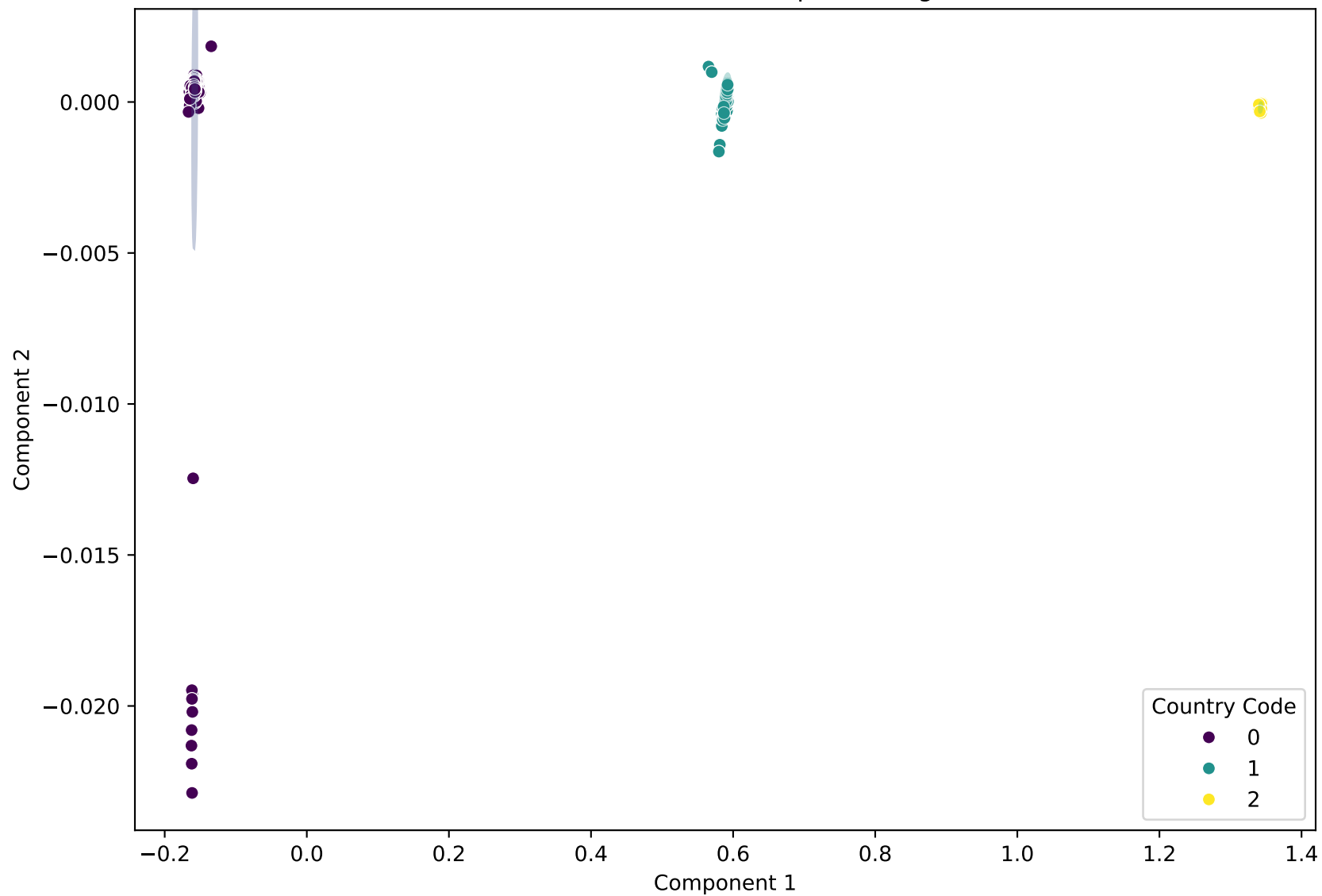
PCA without Preprocessing



PCA with UV-1-der Preprocessing



PCA with UV-2-der Preprocessing



Conclusions

Based on the evaluation metrics, UV-1-der and UV-2-der preprocessing methods provide the best clustering results.
PCA without preprocessing also performs well.