



Supplementary Data

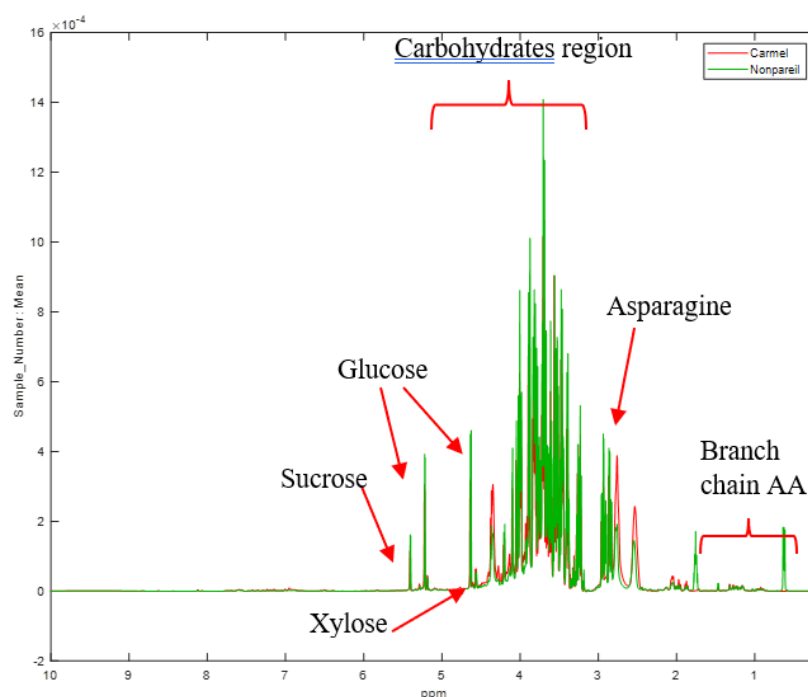
Restricted nitrogen and water applications in the orchard modify the carbohydrate and amino acid composition of Nonpareil and Carmel almond hulls

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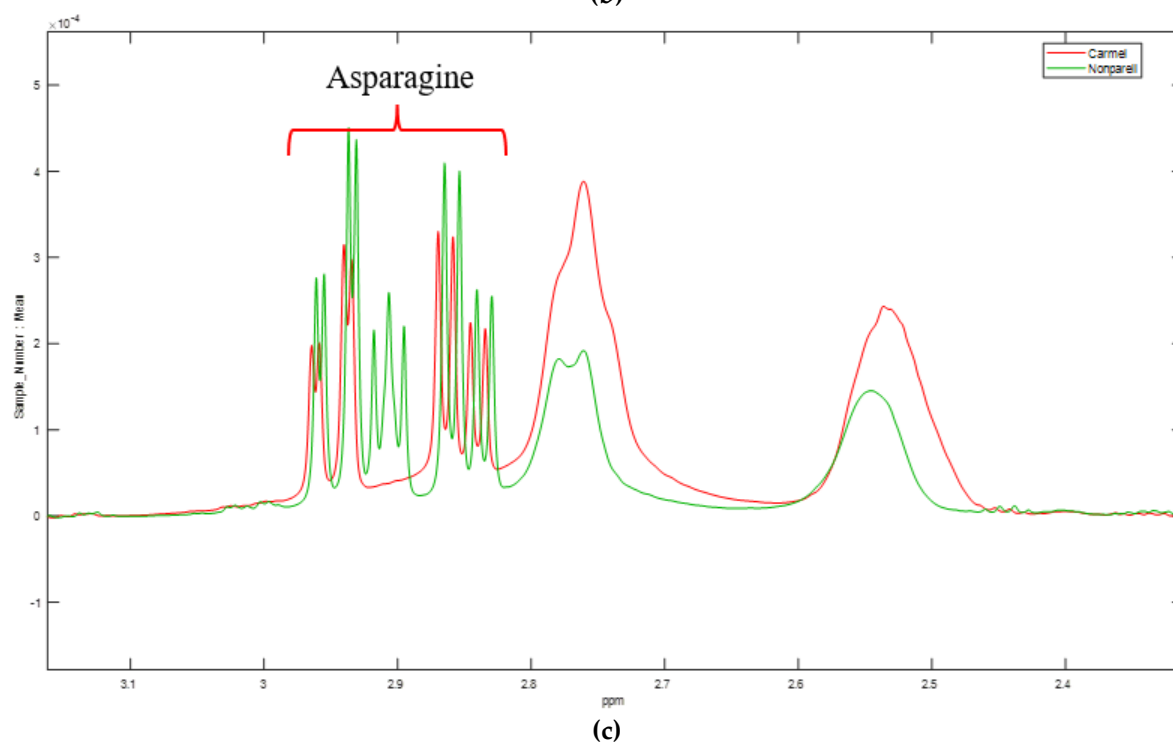
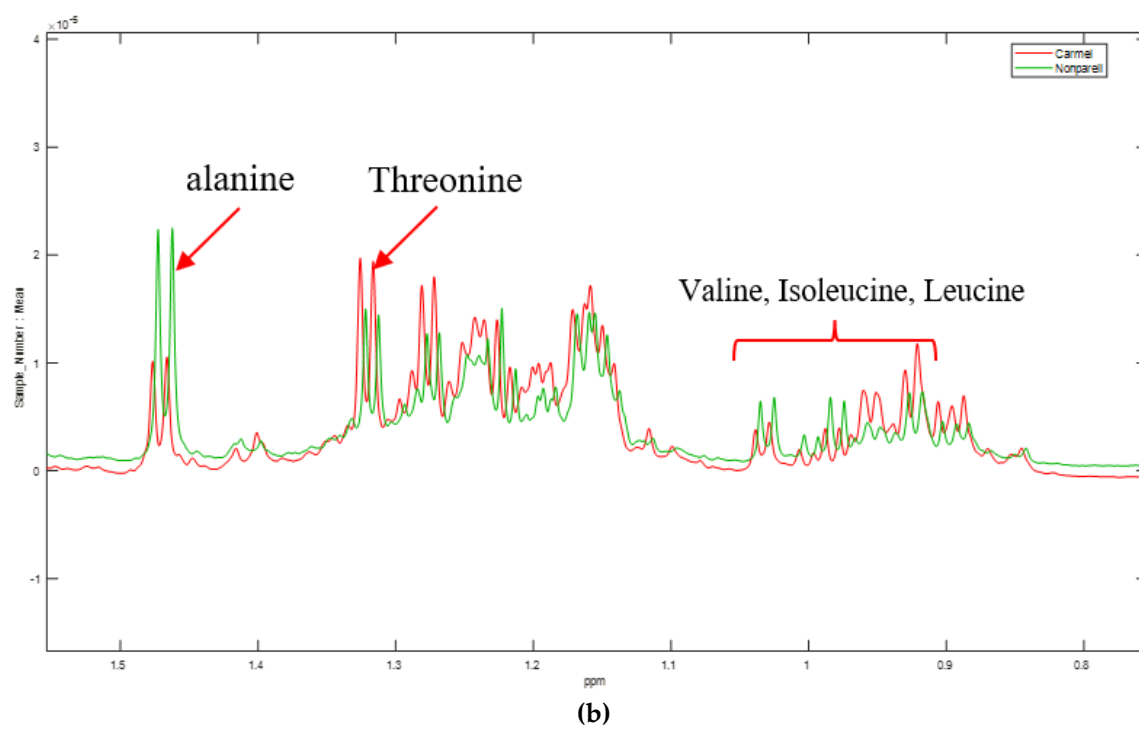
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Table S1. Components have been identified in the almond hull of Nonpareil and Carmel varieties.

Components identified	Nonpareil	Carmel
Glucose	✓	✓
Sucrose	✓	✓
Fructose	✓	✓
Xylose	✓	✓
Asparagine	✓	✓
Alanine	✓	✓
Threonine	✓	✓
Valine	✓	✓
Isoleucine	✓	✓
Leucine	✓	✓



(a)



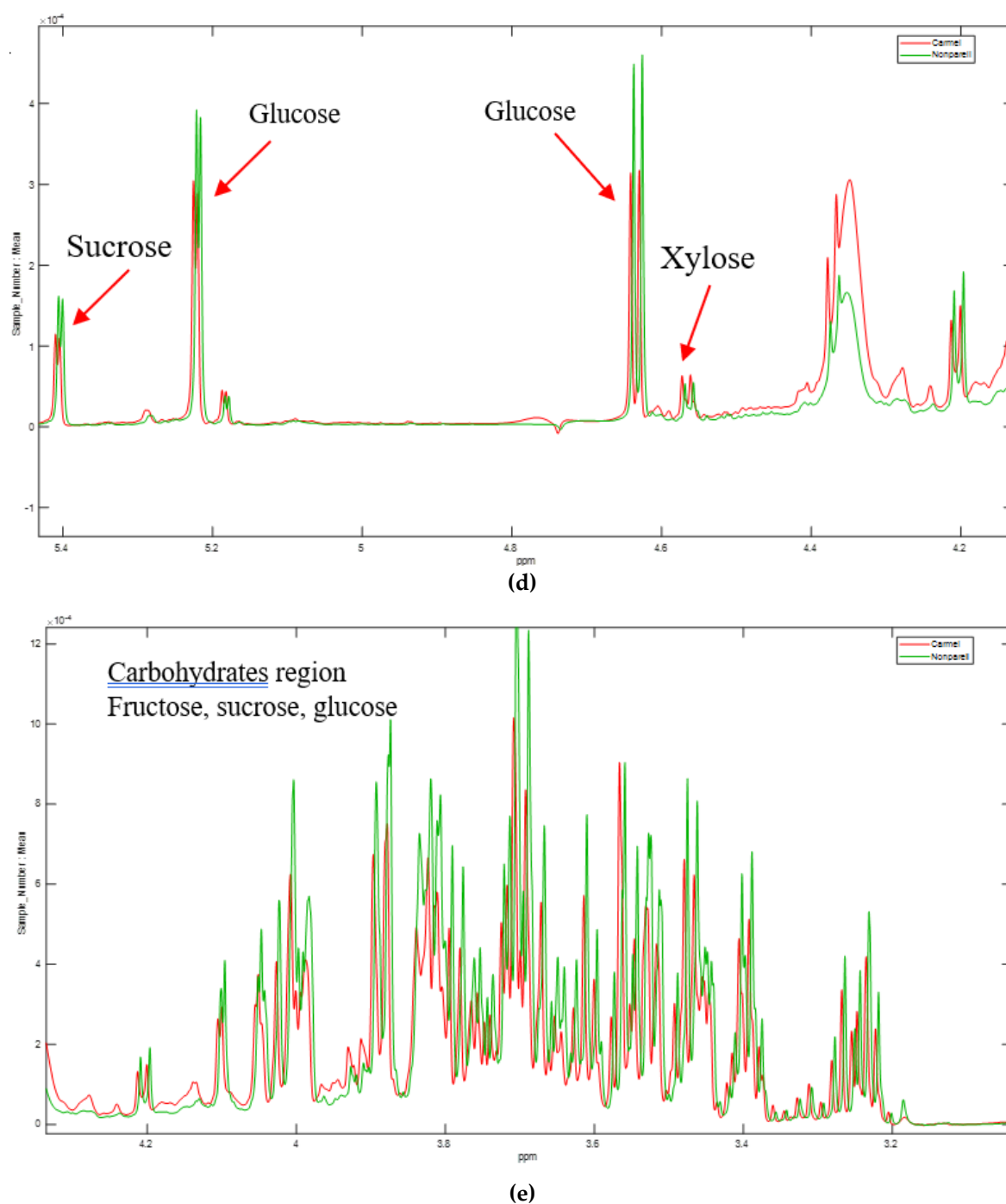
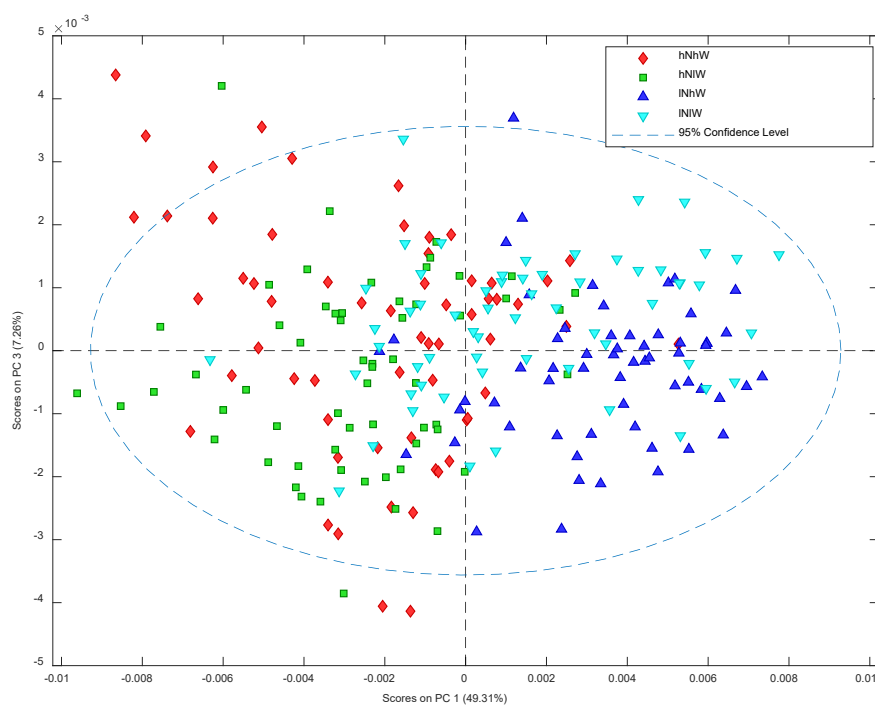
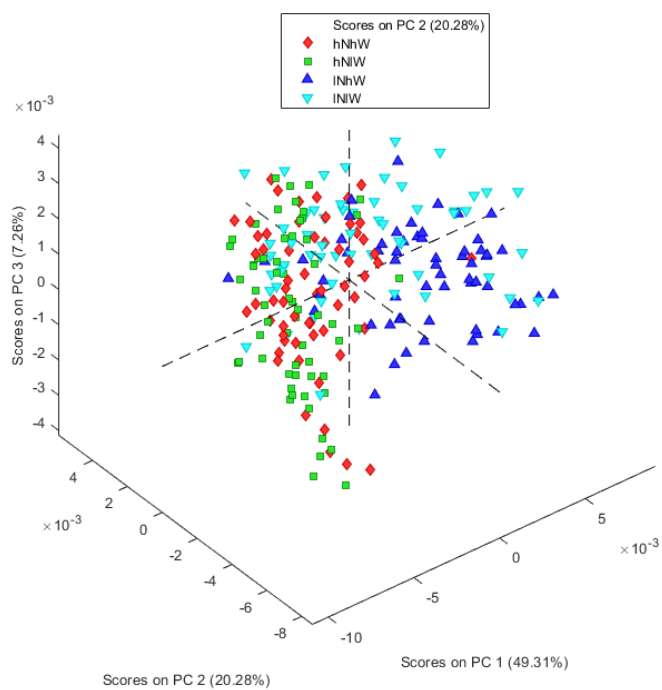


Figure S1. Comparison of Nonpareil and Carmel hull components based on loadings plot: components of interest have been identified in almond hull composition of both varieties - glucose, sucrose, fructose, xylose and branch chain amino acids (a) overlap of Nonpareil and Carmel spectra (b) amino acid region: Carmel has elevated level of amino acids (c) Elevated asparagine presence in Nonpareil samples (d) Elevated Glucose (4.51ppm, 5.2ppm), and Sucrose (5.4 ppm) (e) overlapping carbohydrate region: elevated level of carbohydrates in Nonpareil samples.

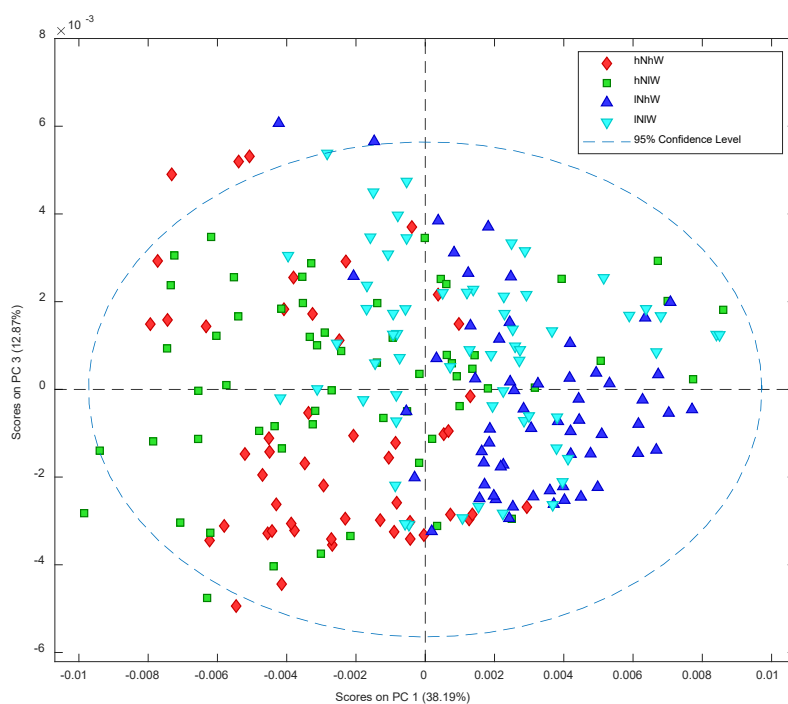


(a)

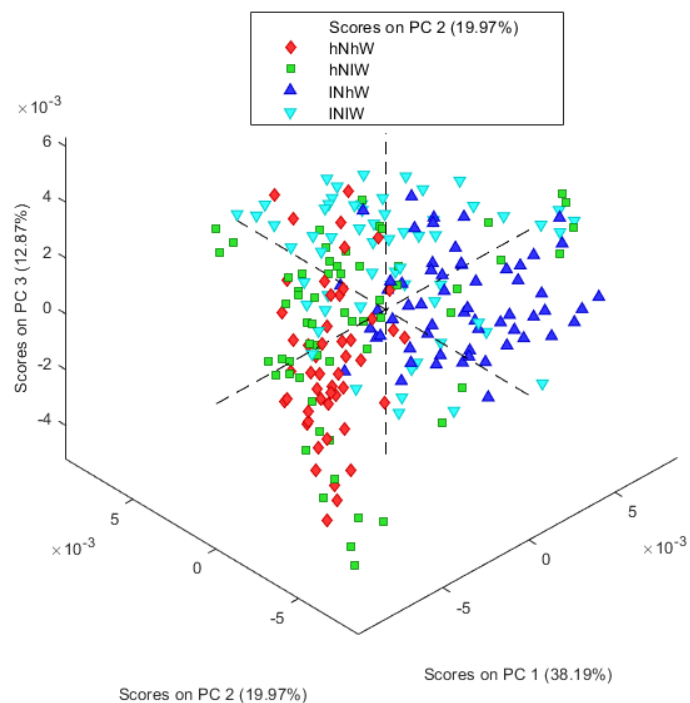


(b)

Figure S2. PCA score and loadings plots of ^1H NMR data of Nonpareil hull: (a) PCA scores plot showing separation of Nonpareil hull samples based on nitrogen treatment; (b) PCA 3D scores plot showing separation of hull samples based on nitrogen treatment.



(a)



(b)

Figure S3. PCA score and loadings plots of ^1H NMR data of Carmel hull: (a) PCA scores plot showing separation of Carmel hull samples based on nitrogen treatment; (b) PCA 3D scores plot showing separation of hull samples based on nitrogen treatment.