|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1.5 kPa** | | | | | | | | | | | |
|  | **CPCRW** | | | | **DWP** | | | | **SR** | | | |
|  | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** |
| AminoSugar | 4.3 ± 0.52 a | 0.33 ± 0.05 b | 0.54 ± 0.1 b | 0.82 ± 0.12 b | 1.03 ± 0.16 b | 0.66 ± 0.11 b | 0.28 ± 0.1 b | 7.76 ± 2.46 a | 0.66 ± 0.23 a | 1.63 ± 0.5 a | 0.59 ± 0.12 a | 1.84 ± 0.3 a |
| Carb | 13.15 ± 2.28 a | 0.4 ± 0.08 b | 0.46 ± 0.05 b | 0.36 ± 0.05 b | 8.32 ± 1.22 ab | 0.32 ± 0.03 b | 0.8 ± 0.24 b | 10.99 ± 3.48 a | 0.13 ± 0.02 b | 1.61 ± 0.61 a | 0.79 ± 0.3 ab | 0.51 ± 0.08 ab |
| ConHC | 1.02 ± 0.23 a | 2.26 ± 0.21 a | 1.36 ± 0.42 a | 2.55 ± 0.68 a | 2.3 ± 0.29 b | 3.1 ± 0.91 b | 6.98 ± 1.16 a | 1.66 ± 0.54 b | 1.52 ± 0.45 a | 0.71 ± 0.34 a | 0.58 ± 0.12 a | 1.29 ± 0.31 a |
| Lignin | 47.39 ± 6.34 a | 58.67 ± 9.42 a | 52.55 ± 3.27 a | 49.34 ± 5.81 a | 43.38 ± 4.12 a | 56.46 ± 1.95 a | 54.11 ± 7.25 a | 15.26 ± 3.77 b | 30.2 ± 2.11 a | 28.94 ± 10.2 a | 19.26 ± 2.9 a | 15.94 ± 0.84 a |
| Lipid | 12.44 ± 5.18 a | 24.17 ± 8.26 a | 24.29 ± 2.66 a | 24.23 ± 4.1 a | 21.63 ± 3.13 a | 20.84 ± 1.54 a | 21.17 ± 5.37 a | 29.39 ± 12.34 a | 43.37 ± 1.9 a | 44.84 ± 11.52 a | 65.05 ± 3.58 a | 43.82 ± 6.28 a |
| Other | 2.71 ± 1.85 a | 0.1 ± 0.03 a | 0.13 ± 0.02 a | 0.07 ± 0.02 a | 0.9 ± 0.12 a | 0.19 ± 0.04 bc | 0.17 ± 0.03 c | 0.75 ± 0.24 ab | 0.26 ± 0.1 a | 0.11 ± 0.02 a | 0 ± 0 a | 0.35 ± 0.15 a |
| Protein | 16.57 ± 1.96 a | 11.57 ± 1.44 a | 18.95 ± 2.03 a | 19.93 ± 2.86 a | 20.41 ± 2.14 b | 14.44 ± 1.13 b | 12.93 ± 2.3 b | 30.07 ± 2.2 a | 18.58 ± 1.49 ab | 20.2 ± 4.83 ab | 9.49 ± 0.92 b | 33.15 ± 5.46 a |
| Tannin | 2.28 ± 0.57 a | 1.85 ± 0.21 a | 1.04 ± 0.21 a | 1.75 ± 0.27 a | 0.44 ± 0.1 b | 2.46 ± 0.25 ab | 1.92 ± 0.51 ab | 3.15 ± 1.06 a | 0.22 ± 0.1 a | 0.42 ± 0.11 a | 0.18 ± 0.06 a | 0.21 ± 0.05 a |
| UnsatHC | 0.15 ± 0.05 b | 0.65 ± 0.09 ab | 0.68 ± 0.18 ab | 0.96 ± 0.21 a | 1.57 ± 1.11 a | 1.53 ± 0.36 a | 1.66 ± 0.26 a | 0.97 ± 0.15 a | 5.05 ± 1.66 a | 1.56 ± 0.21 a | 4.06 ± 0.85 a | 2.9 ± 0.81 a |
| total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

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|  | **50 kPa** | | | | | | | | | | | |
|  | **CPCRW** | | | | **DWP** | | | | **SR** | | | |
|  | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** |
| Amino Sugar | 4.35 ± 0.66 | 0.2 ±  0 | 0.53 ± 0.06 | 0.37 ± 0.02 | 1.38 ± 0.38 | 0.79 ± 0.07 | 0.61 ± 0.12 | 8.79 ± 1.49 | 0.31 ± 0.09 | 1.24 ± 0.24 | 1.66 ± 0.34 | 2.18 ± 1.37 |
| Carb | 10.91 ± 2.17 | 0.31 ± 0.01 | 0.9 ± 0.25 | 0.42 ± 0.05 | 4.06 ± 1.1 | 0.33 ± 0.01 | 0.86 ± 0.15 | 9.91 ± 1.31 | 0.3 ± 0.05 | 1.03 ± 0.54 | 0.38 ± 0.03 | 0.17 ± 0.02 |
| ConHC | 1.37 ± 0.34 | 2.58 ± 0.51 | 2.5 ± 0.45 | 4.14 ± 1.04 | 2.35 ± 0.33 | 3.66 ± 0.85 | 4.96 ± 1.11 | 2.47 ± 0.26 | 0.42 ± 0.19 | 0.51 ± 0.15 | 1.25 ± 0.52 | 1.44 ± 0.32 |
| Lignin | 56.09 ± 2.88 | 82.96 ± 1.55 | 69.89 ± 1.46 | 75.73 ± 2.43 | 55.56 ± 2.55 | 71.02 ± 2.08 | 58.9 ± 9.08 | 33.19 ± 3.36 | 42.7 ± 8.42 | 36.06 ± 5.64 | 28.39 ± 4.35 | 40.32 ± 11.73 |
| Lipid | 7.07 ± 1.09 | 5.52 ± 2.18 | 9.61 ± 1.49 | 8.66 ± 1.76 | 11.53 ± 1.44 | 9.36 ± 1.09 | 18.88 ± 10.45 | 7.74 ± 2.81 | 36.81 ± 7.51 | 43.72 ± 6.42 | 38.67 ± 7 | 33.89 ± 9.83 |
| Protein | 16.11 ± 1.74 | 3.97 ± 0.08 | 12.8 ± 0.71 | 7 ±  0.8 | 22.26 ± 2 | 10.7 ± 1.54 | 10.55 ± 1.35 | 30.92 ± 3.15 | 17.24 ± 4.14 | 14.49 ± 2.04 | 27 ± 3.64 | 17.71 ± 5.26 |
| Tannin | 3.37 ± 0.46 | 3.93 ± 0.92 | 3.14 ± 0.6 | 2.88 ± 0.43 | 1.52 ± 0.21 | 3.16 ± 0.46 | 3.95 ± 0.93 | 5.18 ± 0.31 | 0.25 ± 0.15 | 0.26 ± 0.07 | 0.22 ± 0.05 | 1.54 ± 1.01 |
| Unsat HC | 0.1 ± 0.03 | 0.36 ± 0.04 | 0.59 ± 0.44 | 0.66 ± 0.32 | 0.76 ± 0.32 | 0.87 ± 0.32 | 1.18 ± 0.53 | 1.21 ± 0.33 | 1.81 ± 0.79 | 2.55 ± 0.35 | 2.33 ± 0.46 | 2.56 ± 0.89 |
| Other | 0.63 ± 0.17 | 0.16 ± 0.02 | 0.04 ± 0 | 0.13 ± 0.04 | 0.58 ± 0.08 | 0.11 ± 0.02 | 0.11 ± 0.03 | 0.59 ± 0.06 | 0.16 ± 0.05 | 0.13 ± 0.03 | 0.11 ± 0.04 | 0.2 ± 0.05 |
| total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **SOIL** | | | **PORES: 1.5 kPa** | | | **PORES: 50 kPa** | | |
| **WSOC, mg/L** | **CPCRW** | **DWP** | **SR** | **CPCRW** | **DWP** | **SR** | **CPCRW** | **DWP** | **SR** |
| Time Zero | 0.78 ± 0.1 | 0.51 ± 0.08 | 0.43 ± 0.04 | 26.3 ± 2.78 | 76.68 ± 21.76 | 6.03 ± 0.57 | 29.14 ± 4.41 | 92.33 ± 22.22 | 7.28 ± 0.34 |
| Field Moist | 0.69 ± 0.07 | 0.35 ± 0.05 | 0.61 ± 0.05 | 21.22 ± 3.73 | 46.33 ± 11.94 | 18.68 ± 2.36 | 41.17 ± 12.67 | 52.43 ± 14.74 | 19.82 ± 2.93 |
| Saturated | 0.59 ± 0.05 | 0.39 ± 0.06 | 0.55 ± 0.06 | 52.82 ± 13.98 | 42.08 ± 7.34 | 23.16 ± 3.29 | 63.4 ± 20.84 | 82.7 ± 16.52 | 24.07 ± 2.43 |
| Drought | 0.85 ± 0.2 | 0.72 ± 0.37 | 0.6 ± 0.04 | 111.82 ± 41.45 | 69.02 ± 13 | 13.9 ± 2.43 | 186.86 ± 62.65 | 69.97 ± 13.39 | 19.3 ± 8.32 |

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|  | **1.5 kPa** | | | **50 kPa** | | |
| **NOSC mean** | **CPCRW** | **DWP** | **SR** | **CPCRW** | **DWP** | **SR** |
| drought | -0.45 ± 0 | -0.55 ± 0.01 | -0.69 ± 0.01 | -0.4 ± 0 | -0.47 ± 0.01 | -0.61 ± 0.01 |
| field moist | -0.46 ± 0.01 | -0.41 ± 0.01 | -0.7 ± 0.01 | -0.32 ± 0.01 | -0.35 ± 0.01 | -0.65 ± 0.01 |
| saturation | -0.59 ± 0 | -0.39 ± 0.01 | -0.6 ± 0.01 | -0.46 ± 0 | -0.33 ± 0.01 | -0.74 ± 0 |
| time zero saturation | -0.5 ± 0 | -0.43 ± 0 | -0.69 ± 0.01 | -0.36 ± 0 | -0.39 ± 0 | -0.53 ± 0.01 |

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|  | **1.5 kPa** | | | **50 kPa** | | |
| **NOSC median** | **CPCRW** | **DWP** | **SR** | **CPCRW** | **DWP** | **SR** |
| drought | -0.5 | -0.6087 | -0.75 | -0.4348 | -0.5385 | -0.6087 |
| field moist | -0.5 | -0.4667 | -0.7692 | -0.3636 | -0.4189 | -0.6667 |
| saturation | -0.6667 | -0.4516 | -0.625 | -0.5185 | -0.381 | -0.8 |
| time zero saturation | -0.56 | -0.4444 | -0.7778 | -0.4 | -0.4167 | -0.5714 |

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| --- | --- | --- | --- | --- | --- |
|  | **baseline** | **drought** | **field moist** | **saturation** | **time zero saturation** |
| **CPCRW** | | | | | |
| AminoSugar | 2.69 ± 0.32 | 1.48 ± 0.12 | 2.19 ± 0.48 | 3.37 ± 0.34 | 2.94 ± 0.35 |
| Carb | 10.82 ± 1.88 | 4.17 ± 0.92 | 9.6 ± 2.33 | 10.78 ± 1.06 | 13.53 ± 1.87 |
| ConHC | 6.45 ± 0.92 | 8.29 ± 1.21 | 7.07 ± 0.6 | 6.01 ± 0.53 | 5.46 ± 0.63 |
| Lignin | 36.24 ± 0.71 | 56.17 ± 3.13 | 45.5 ± 5.07 | 35.47 ± 1.45 | 32.94 ± 2.75 |
| Lipid | 24.65 ± 3.11 | 10.11 ± 1.93 | 16.35 ± 3.94 | 22.37 ± 0.85 | 24.32 ± 3.62 |
| Protein | 11.59 ± 1 | 11.91 ± 1.2 | 11.18 ± 0.5 | 14.69 ± 1.18 | 13.63 ± 1.63 |
| Tannin | 4.79 ± 0.45 | 5.92 ± 0.29 | 4.61 ± 0.52 | 4.57 ± 0.25 | 4.44 ± 0.94 |
| Unnamed | 2.08 ± 0.34 | 1.12 ± 0.07 | 2.5 ± 0.42 | 1.8 ± 0.23 | 1.91 ± 0.18 |
| UnsatHC | 0.69 ± 0.07 | 0.84 ± 0.09 | 1 ± 0.12 | 0.93 ± 0.08 | 0.83 ± 0.06 |
| total | 100 | 100 | 100 | 100 | 100 |
|  | | | | | |
| **DWP** | | | | | |
| AminoSugar | 6.49 ± 0.45 | 1.82 ± 0.18 | 2.05 ± 0.13 | 1.74 ± 0.2 | 2.75 ± 0.24 |
| Carb | 19.77 ± 0.65 | 6.38 ± 0.94 | 9.32 ± 0.53 | 9 ± 1.02 | 14.22 ± 1.66 |
| ConHC | 7.27 ± 0.47 | 10.05 ± 0.47 | 9.14 ± 0.97 | 10.54 ± 1.27 | 9.77 ± 0.37 |
| Lignin | 28.57 ± 1.26 | 34.54 ± 1.86 | 29.34 ± 2.83 | 35.62 ± 2.3 | 31.76 ± 4.2 |
| Lipid | 10.43 ± 0.35 | 23.73 ± 2.62 | 23.71 ± 2.24 | 19.37 ± 2.09 | 17.52 ± 3.12 |
| Protein | 14.6 ± 1.09 | 15.61 ± 0.61 | 18.52 ± 1.89 | 13.29 ± 1.26 | 13.4 ± 0.76 |
| Tannin | 7.43 ± 0.33 | 3.11 ± 0.47 | 2.58 ± 0.7 | 3.52 ± 0.41 | 4.06 ± 0.23 |
| Unnamed | 3.92 ± 0.08 | 3.21 ± 0.33 | 3.77 ± 0.18 | 4.18 ± 0.1 | 4.47 ± 0.5 |
| UnsatHC | 1.53 ± 0.29 | 1.54 ± 0.24 | 1.57 ± 0.16 | 2.74 ± 0.41 | 2.05 ± 0.33 |
| total | 100 | 100 | 100 | 100 | 100 |
|  | | | | | |
| **SR** | | | | | |
| AminoSugar | 2.82 ± 0.26 | 3.45 ± 0.32 | 4.16 ± 0.16 | 3.37 ± 0.1 | 3.16 ± 0.27 |
| Carb | 11.72 ± 1.38 | 15.55 ± 1.14 | 12.38 ± 0.83 | 12.8 ± 0.78 | 10.39 ± 0.75 |
| ConHC | 13.77 ± 0.89 | 10.45 ± 0.75 | 7.44 ± 1.61 | 7.59 ± 1.09 | 9.72 ± 0.69 |
| Lignin | 26.8 ± 2.15 | 36.4 ± 2.72 | 34.19 ± 1.33 | 33.55 ± 1.68 | 26.88 ± 1.05 |
| Lipid | 23.96 ± 3.3 | 10.45 ± 1.02 | 15.64 ± 1.3 | 15.05 ± 0.78 | 23.02 ± 3.09 |
| Protein | 12.49 ± 1.39 | 14.27 ± 1.97 | 18.22 ± 2.84 | 19.2 ± 1.84 | 17.12 ± 1.06 |
| Tannin | 2.74 ± 0.26 | 3.33 ± 0.46 | 2.64 ± 0.26 | 2.94 ± 0.22 | 2.68 ± 0.15 |
| Unnamed | 1.72 ± 0.12 | 2.48 ± 0.14 | 1.33 ± 0.13 | 1.49 ± 0.2 | 2.03 ± 0.2 |
| UnsatHC | 4 ± 0.29 | 3.61 ± 0.74 | 4 ± 0.33 | 4 ± 0.8 | 5 ± 0.73 |
| total | 100 | 100 | 100 | 100 | 100 |

Unique molecules

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1.5 kPa** | | | | | | | | |
|  | **CPCRW** | | | **DWP** | | | **SR** | | |
|  | **Drought** | **FM** | **Sat** | **Drought** | **FM** | **Sat** | **Drought** | **FM** | **Sat** |
| AminoSugar | 118 | 0 | 3 | 7 | 7 | 0 | 0 | 14 | 3 |
| Carb | 177 | 4 | 3 | 6 | 3 | 0 | 0 | 16 | 1 |
| ConHC | 6 | 3 | 3 | 4 | 29 | 27 | 8 | 10 | 8 |
| Lignin | 71 | 102 | 107 | 23 | 230 | 2 | 59 | 96 | 19 |
| Lipid | 8 | 5 | 88 | 25 | 16 | 4 | 63 | 22 | 9 |
| Other | 19 | 0 | 0 | 6 | 4 | 0 | 1 | 4 | 0 |
| Protein | 86 | 16 | 61 | 49 | 15 | 0 | 25 | 81 | 9 |
| Tannin | 15 | 6 | 0 | 1 | 34 | 0 | 4 | 5 | 1 |
| UnsatHC | 0 | 7 | 3 | 0 | 5 | 3 | 0 | 0 | 6 |

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|  | **50 kPa** | | | | | | | | |
|  | **CPCRW** | | | **DWP** | | | **SR** | | |
|  | **Drought** | **FM** | **Sat** | **Drought** | **FM** | **Sat** | **Drought** | **FM** | **Sat** |
| AminoSugar | 217 | 0 | 2 | 5 | 2 | 3 | 0 | 11 | 23 |
| Carb | 240 | 1 | 0 | 8 | 0 | 0 | 2 | 10 | 1 |
| ConHC | 6 | 4 | 4 | 6 | 5 | 57 | 0 | 0 | 4 |
| Lignin | 328 | 12 | 38 | 45 | 14 | 67 | 2 | 26 | 91 |
| Lipid | 26 | 1 | 28 | 31 | 0 | 12 | 30 | 18 | 70 |
| Other | 10 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 2 |
| Protein | 282 | 0 | 24 | 93 | 7 | 6 | 11 | 17 | 175 |
| Tannin | 104 | 0 | 5 | 1 | 2 | 32 | 0 | 0 | 3 |
| UnsatHC | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 3 | 2 |

Peaks

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1.5 kPa** | | | | | | | | | | | |
|  | **CPCRW** | | | | **DWP** | | | | **SR** | | | |
|  | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** |
| AminoSugar | 508 | 72 | 122 | 162 | 117 | 93 | 19 | 958 | 65 | 205 | 57 | 172 |
| Carb | 792 | 89 | 123 | 74 | 380 | 40 | 47 | 1219 | 14 | 96 | 34 | 37 |
| ConHC | 195 | 556 | 353 | 565 | 125 | 500 | 609 | 196 | 86 | 49 | 82 | 113 |
| Lignin | 4,393 | 5,504 | 5737 | 5642 | 3827 | 4852 | 3447 | 3414 | 2279 | 2722 | 1982 | 1967 |
| Lipid | 472 | 588 | 1081 | 707 | 548 | 465 | 358 | 555 | 845 | 817 | 498 | 608 |
| Other | 110 | 28 | 40 | 23 | 58 | 24 | 11 | 106 | 11 | 17 | NA | 18 |
| Protein | 1802 | 1308 | 2130 | 1957 | 1540 | 979 | 605 | 2259 | 1081 | 1802 | 433 | 1584 |
| Tannin | 385 | 372 | 256 | 389 | 61 | 372 | 165 | 490 | 33 | 35 | 31 | 39 |
| UnsatHC | 13 | 60 | 62 | 69 | 21 | 33 | 33 | 60 | 55 | 56 | 86 | 73 |
| total | 8670 | 8577 | 9904 | 9588 | 6677 | 7358 | 5294 | 9257 | 4469 | 5799 | 3203 | 4611 |

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|  | **50 kPa** | | | | | | | | | | | |
|  | **CPCRW** | | | | **DWP** | | | | **SR** | | | |
|  | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** | **drought** | **FM** | **Sat** | **TZSat** |
| AminoSugar | 912 | 27 | 101 | 95 | 156 | 78 | 118 | 1064 | 19 | 138 | 235 | 125 |
| Carb | 1220 | 39 | 186 | 92 | 305 | 24 | 120 | 1144 | 23 | 75 | 43 | 21 |
| ConHC | 582 | 408 | 558 | 967 | 372 | 396 | 815 | 529 | 11 | 55 | 59 | 210 |
| Lignin | 8749 | 3999 | 6125 | 7846 | 5015 | 3624 | 5602 | 5716 | 2268 | 3741 | 3071 | 3524 |
| Lipid | 813 | 132 | 713 | 574 | 586 | 195 | 447 | 606 | 471 | 891 | 999 | 520 |
| Other | 64 | 27 | 7 | 35 | 44 | 6 | 12 | 84 | 7 | 18 | 13 | 12 |
| Protein | 2831 | 255 | 1523 | 890 | 1796 | 606 | 1094 | 2474 | 814 | 1115 | 2143 | 1137 |
| Tannin | 993 | 285 | 452 | 577 | 289 | 318 | 619 | 751 | 13 | 40 | 33 | 110 |
| UnsatHC | 16 | 27 | 11 | 41 | 21 | 9 | 38 | 67 | 16 | 83 | 61 | 69 |
| total | 16180 | 5199 | 9676 | 11117 | 8584 | 5256 | 8865 | 12435 | 3642 | 6156 | 6657 | 5728 |