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

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|  | **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 |