

Title:

Effects of long-term mowing on the fractions and chemical composition of soil organic matter in a semiarid grassland

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Table S1¹³C-NMR assignment and potential source of functional groups

Chemical shift (ppm)	Assignment	Compounds derived	Potential sources	References
45 – 0	Alkyl C	Terminal methyl, long-chain aliphatics, fatty acids, acetate, polymethylene, waxes, cutins, suberins, lipids, hemcellulose, tannin, lignin, resins, peptide side-chain	Microbial biomass (cellular residues), litter, roots, plant derived biopolymers (plant roots residues)	Mathers et al., 2007; Madalena et al., 2013; Mao et al., 2008
60 – 45	<i>N</i> -alkyl / methoxyl C	amino acids, lignin and peptide residues,	Microbial biomass, degraded products of plant litter	Mathers et al., 2007
90 – 60	<i>O</i> -alkyl/C2 – C6	Carbohydrates, celluloses, hemicellulose, polysaccharides, alcholes, amino sugars, side-chain of lignin	Root exudates, bacterial biomass, plant litter	Kogel-Knabner, et al., 2002;
110 – 90	di- <i>O</i> -alkyl / anomeric C	Anomeric C1 of celluloses, tannin and lignin components	Plant litter	Mathers et al., 2007
140 – 160	Aryl C	Polyphenols, lignin, tannin components, C- and H-substituted, aromatic C olefinic C	Litter, roots, charcoal	Mathers et al., 2007
160 – 140	<i>O</i> -aryl C	Phenols, lignin/tannin components/indicators, suberin, O- and N-	Plant litter,	Panitieri, et al., 2014; Mathers et al., 2007

190 – 160	Carboxyl C	substituted aromatic C, olefinic C, black carbon Carboxylic acids, amide and ester C, organic acids,	Mathers et al., 2007
210 – 190	Ketone C	Carbonyl C groups, organic acids, ketones, quinoe and aldehydes	Mathers et al., 2007
