

1 Supporting Information 1. Mean (SE) of H<sub>2</sub> production rate during thermal degradation and photodegradation of six different  
 2 plant litter types normalized by area and mass.  
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Pathways	T (°C)	Basswood	Cellulose	Mesquite	C <sub>3</sub> grass	C <sub>4</sub> grass	Piñon
Normalized by area (nmol m <sup>-2</sup> s <sup>-1</sup> )							
Thermal degradation	25	0.024 (0.003)	0.021 (0.004)	0.003 (n.a.)	0.029 (0.001)	0.002 (0.002)	0.040 (0.002)
	35	0.137 (0.029)	0.060 (0.032)	0.002 (0.001)	0.073 (0.029)	0.041 (0.006)	0.200 (0.030)
	45	0.709 (0.117)	0.145 (0.067)	0.052 (0.008)	0.136 (0.037)	0.187 (0.013)	0.545 (0.103)
	55	1.650 (0.289)	0.269 (0.031)	0.203 (0.028)	0.284 (0.093)	0.556 (0.028)	0.770 (0.191)
	80	6.279 (0.403)					
Photo-degradation	15	0.033 (0.015)	0.042 (0.004)	0.021 (0.000)	0.026 (0.006)	0.021 (0.002)	0.039 (0.003)
	25	0.047 (0.012)	0.044 (0.035)	0.011 (0.002)	0.053 (0.027)	0.026 (0.005)	0.063 (0.006)
	35	0.134 (0.017)	0.066 (0.030)	0.039 (0.009)	0.040 (0.014)	0.053 (0.004)	0.116 (0.025)
	45	0.400 (0.114)	0.118 (0.034)	0.075 (0.006)	0.067 (0.013)	0.102 (0.004)	0.270 (0.051)
	55	0.579 (0.067)	0.095 (0.010)	0.120 (0.048)	0.062 (0.022)	0.175 (0.010)	0.579 (0.255)
80	1.918 (0.534)						
Normalized by mass (nmol kg <sup>-1</sup> s <sup>-1</sup> )							
Thermal degradation	25	0.026 (0.004)	0.023 (0.004)	0.004 (n.a.)	0.031 (0.001)	0.002 (0.002)	0.042 (0.002)
	35	0.146 (0.031)	0.064 (0.034)	0.002 (0.001)	0.078 (0.031)	0.043 (0.007)	0.214 (0.032)
	45	0.759 (0.125)	0.155 (0.072)	0.056 (0.009)	0.145 (0.040)	0.200 (0.014)	0.584 (0.110)
	55	1.766 (0.309)	0.288 (0.033)	0.217 (0.030)	0.304 (0.099)	0.596 (0.030)	0.824 (0.205)
	80	4.668 (0.155)					
Photo-degradation	15	0.034 (0.016)	0.045 (0.004)	0.021 (0.000)	0.028 (0.006)	0.022 (0.002)	0.042 (0.003)
	25	0.050 (0.013)	0.048 (0.037)	0.012 (0.002)	0.056 (0.029)	0.028 (0.005)	0.068 (0.006)
	35	0.143 (0.018)	0.070 (0.032)	0.042 (0.009)	0.043 (0.015)	0.057 (0.004)	0.124 (0.027)
	45	0.428 (0.122)	0.126 (0.037)	0.080 (0.007)	0.072 (0.014)	0.109 (0.005)	0.289 (0.054)
	55	0.619 (0.072)	0.101 (0.010)	0.128 (0.052)	0.066 (0.023)	0.188 (0.011)	0.620 (0.273)
80	2.055 (0.572)						

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