**Supplementary Data File A: δ13Corg and C:N ratios for organic carbon sources derived from published studies**

*Methods*

For means and standard deviations (StdDev; σ) of δ13Corg and C:N ratios shown in Table 1, the following method were employed. All work was completed in excel.

1. All individual values and means and StdDevs for various forms of organic material were compiled. Only values for organic sources that could clearly be assigned to a type of organic material listed in Table 1 were used.
2. For all individual values for a particular type of organic matter (e.g., marine particulate organic matter), a mean and StdDev are calculated.
3. To calculate the mean of all samples in a sample set:

Where, **xs** is the mean of all individual samples; **xi** is individual values; **n** is number of measurements.

1. To calculate the standard deviation of all samples in a sample set:

Where, **σs** is the standard deviation of all individual samples.

1. The means of multiple data sets, **xavg**, is calculated using:

Where, **xs** is published means and mean of all individual samples; **N** is total number of measurements in all sample sets.

1. The standard deviation of all sample sets, **σavg,** are combined using the following equation:

Where, **n** is the number of samples used to calculate the mean (**xs)** and standard deviation (**σs)** of each sample set, and **xavg** is the mean of means determined in step 5.

*Data Sources:*

*Marine particulate organic matter (POM) [n = 53]*

|  |  |  |
| --- | --- | --- |
|  | **Organic Matter** | **δ13Corg (‰)** |
| 1 | Williams, P. M., and Gordon, L. I., 1970, Carbon-13 : carbon-12 ratios in dissolved and particulate organic matter in the sea: Deep-Sea Research, v. 17, p. 19-27. | |
| Marine Particulate Organic Matter (POM) | -23.2 |
| Marine Particulate Organic Matter (POM) | -23.2 |
| Marine Particulate Organic Matter (POM) | -22 |
| Marine Particulate Organic Matter (POM) | -24.3 |
| Marine Particulate Organic Matter (POM) | -23.2 |
| Marine Particulate Organic Matter (POM) | -21.6 |
| Marine Particulate Organic Matter (POM) | -23.3 |
| 2 | Gearing, J. N., Gearing, P. J., Rudnick, D. T., Requejo, A. G., and Hutchins, M. J., 1984, Isotopic variability of organic carbon in a phtyoplankton-based, temperate estuary: Geochimica et Cosmochimica Acta, v. 48, p. 1089-1098. | |
| POM - 45 to 50o N | -23.9 ± 0.8 (11) |
| POM - 18 to 29o N | -22 ± 2.1 (23) |
| POM - 18o N | -21.8 ± 1 (12) |

*Marine Plankton – Equator to ± 50° latitude [n = 184]*

|  |  |  |
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|  | **Organic Matter** | **δ13Corg (‰)** |
| 1 | Williams, P. M., and Gordon, L. I., 1970, Carbon-13 : carbon-12 ratios in dissolved and particulate organic matter in the sea: Deep-Sea Research, v. 17, p. 19-27. | |
| Zooplankton (~70% copepods) | -19.7 |
| Zooplankton (~70% copepods) | -18.6 |
| 2 | Sackett, W. M., Eckelmann, W. R., Bender, M. L., and Be, A. W. H., 1965, Temperature dependence of carbon isotope composition in marine plankton and sediments: Science, v. 148, p. 235-237. | |
| Zooplankton + minor Phytoplankton - Pacific | -21.7 |
| Zooplankton + minor Phytoplankton - Pacific | -21.4 |
| Zooplankton + minor Phytoplankton - Pacific | -24.5 |
| Zooplankton + minor Phytoplankton - Atlantic | -21.4 |
| Zooplankton + minor Phytoplankton - Atlantic | -23.2 |
| Zooplankton + minor Phytoplankton - Atlantic | -19.9 |
| Zooplankton + minor Phytoplankton - Atlantic | -20.6 |
| Zooplankton + minor Phytoplankton - Atlantic | -19.6 |
| 3 | Rau, G. H., 1982, The relationship between trophic level and stable isotopes of carbon and nitrogen, Coastal Water Research Project, Biennial Report for 1981-1982: Technical Report of the Southern California Coastal Water Resources Project. | |
| Zooplankton | -19.9 |
| Zooplankton | -20.1 |
| Zooplankton | -20.6 |
| Plankton | -18 |
| Plankton | -22 |
| 4 | Gearing, J. N., Gearing, P. J., Rudnick, D. T., Requejo, A. G., and Hutchins, M. J., 1984, Isotopic variability of organic carbon in a phtyoplankton-based, temperate estuary: Geochimica et Cosmochimica Acta, v. 48, p. 1089-1098. | |
| Phytoplankton | -19.7 ± 0.3 (5) |
| Zooplankton | -19.3 ± 0.3 (5) |
| Phytoplankton | -22.2 ± 0.2 (3) |
| Zooplankton | -22.7 ± 0.3 (3) |
| Phytoplankton | -23.2 ± 0.4 (3) |
| Zooplankton | -22.9 ± 1.1 (3) |
| Phytoplankton | -22.5 ± 0.7 (5) |
| Zooplankton | -21.8 ± 1.6 (4) |
| Phytoplankton | -22.4 |
| Phytoplankton | -22.4 |
| Zooplankton | -20.9 ± 0.6 (3) |
| Plankton - 45 to 50o N | -23.8 ± 1.2 (5) |
| Plankton ~ 33o N | -20.9 ± 0.9 (12) |
| Plankton 16 to 37o S | -20.1 ± 0.7 (27) |
| Plankton 3 to 13o S | -19.3 ± 1.2 (18) |
| **Organic Matter** | **δ13Corg (‰)** |
| 5 | Fontugne, M. R., and Duplessy, J. C., 1981, 0rganic carbon isotopic fractionation by marine plankton in the temperature range -1 to 31oC: Oceanologica Acta, v. 4, no. 1, p. 85-90. | |
| Plankton 13 to 20o S | -20.71 |
| Plankton 13 to 20o S | -20.39 |
| Plankton 13 to 20o S | -19.64 |
| Plankton 13 to 20o S | -19.11 |
| Plankton 13 to 20o S | -19.23 |
| Plankton 13 to 20o S | -19.53 |
| Plankton 13 to 20o S | -19.66 |
| Plankton 13 to 20o S | -20.14 |
| Plankton 13 to 20o S | -19.60 |
| Plankton 13 to 20o S | -19.21 |
| Plankton 13 to 20o S | -19.47 |
| Plankton - South Equatorial Current (9 to 13o S) | -19.82 |
| Plankton - South Equatorial Current (9 to 13o S) | -19.45 |
| Plankton - South Equatorial Current (9 to 13o S) | -19.91 |
| Plankton - South Equatorial Current (9 to 13o S) | -19.99 |
| Plankton - North Equatorial Counter Current (6 to 9o S) | -20.48 |
| Plankton - North Equatorial Counter Current (6 to 9o S) | -20.13 |
| Plankton - North Equatorial Counter Current (6 to 9o S) | -20.52 |
| Plankton - North Equatorial Counter Current (6 to 9o S) | -20.41 |
| Plankton - North Equatorial Current (0 to 5o S) | -19.40 |
| Plankton - North Equatorial Current (0 to 5o S) | -19.42 |
| Plankton - North Equatorial Current (0 to 5o S) | -19.65 |
| Plankton - North Equatorial Current (0 to 5o S) | -19.43 |
| Plankton - North Equatorial Current (0 to 5o S) | -19.48 |
| Plankton 4 to 26o S | -19.90 |
| Plankton 4 to 26o S | -19.86 |
| Plankton - Andaman Sea (6 to 14o N) | -20.00 |
| Plankton - Andaman Sea (6 to 14o N) | -19.90 |
| Plankton - Andaman Sea (6 to 14o N) | -20.24 |
| Plankton - Andaman Sea (6 to 14o N) | -20.10 |
| Plankton - Andaman Sea (6 to 14o N) | -19.97 |
| Plankton - Andaman Sea (6 to 14o N) | -19.87 |
| Plankton - Andaman Sea (6 to 14o N) | -20.63 |
| Plankton - Andaman Sea (6 to 14o N) | -19.93 |
| Plankton - Andaman Sea (6 to 14o N) | -19.50 |
| **Organic Matter** | **δ13Corg (‰)** |
| Plankton - Andaman Sea (6 to 14o N) | -19.88 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.51 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.67 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.44 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.70 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.51 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.73 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.71 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.74 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.52 |
| Plankton - Gulf of Bengal (12 to 19o N) | -19.78 |
| Plankton 7 to 10o N | -20.05 |
| Plankton 7 to 10o N | -20.10 |
| Plankton 7 to 10o N | -19.96 |
| Plankton 7 to 10o N | -19.43 |
| Plankton 7 to 10o N | -20.14 |
| Plankton 7 to 10o N | -20.00 |
| Plankton 7 to 10o N | -19.78 |
| Plankton - West coast of India (10 to 14o N) | -19.38 |
| Plankton - West coast of India (10 to 14o N) | -19.27 |
| Plankton - West coast of India (10 to 14o N) | -19.19 |
| Plankton - West coast of India (10 to 14o N) | -19.32 |
| Plankton - Arabian Sea (13 to 20o N) | -18.76 |
| Plankton - Arabian Sea (13 to 20o N) | -19.01 |
| Plankton - Arabian Sea (13 to 20o N) | -19.27 |
| Plankton - Arabian Sea (13 to 20o N) | -19.08 |
| Plankton - Arabian Sea (13 to 20o N) | -18.80 |
| Plankton - Arabian Sea (13 to 20o N) | -19.00 |
| Plankton - Upwelling 17 to 21o N | -20.47 |
| Plankton - Upwelling 17 to 21o N | -19.68 |
| Plankton - Upwelling 17 to 21o N | -20.15 |
| Plankton - Gulf of Aden (15 to 17o N) | -20.16 |
| Plankton - Gulf of Aden (15 to 17o N) | -21.83 |
| Plankton - Gulf of Aden (15 to 17o N) | -20.39 |
| Plankton - Red Sea (15 to 22o N) | -17.58 |
| Plankton - Red Sea (15 to 22o N) | -18.53 |

*Marine dissolved organic matter (DOM) [n = 23]*

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|  | **Organic Matter** | **δ13Corg (‰)** |
| 1 | Williams, P. M., and Gordon, L. I., 1970, Carbon-13 : carbon-12 ratios in dissolved and particulate organic matter in the sea: Deep-Sea Research, v. 17, p. 19-27. | |
| Marine Dissolved Organic Matter (DOM) | -22 |
| Marine Dissolved Organic Matter (DOM) | -22.1 |
| Marine Dissolved Organic Matter (DOM) | -22.5 |
| Marine Dissolved Organic Matter (DOM) | -22.5 |
| Marine Dissolved Organic Matter (DOM) | -22.4 |
| Marine Dissolved Organic Matter (DOM) | -22.8 |
| Marine Dissolved Organic Matter (DOM) | -22.7 |
| Marine Dissolved Organic Matter (DOM) | -22.9 |
| Marine Dissolved Organic Matter (DOM) | -24.4 |
| Marine Dissolved Organic Matter (DOM) | -23.2 |
| Marine Dissolved Organic Matter (DOM) | -23.2 |
| Marine Dissolved Organic Matter (DOM) | -23.2 |
| Marine Dissolved Organic Matter (DOM) | -22.5 |
| Marine Dissolved Organic Matter (DOM) | -21.2 |
| Marine Dissolved Organic Matter (DOM) | -22.5 |
| Marine Dissolved Organic Matter (DOM) | -22 |
| Marine Dissolved Organic Matter (DOM) | -22.8 |
| Marine Dissolved Organic Matter (DOM) | -22.7 |
| Marine Dissolved Organic Matter (DOM) | -22.2 |
| Marine Dissolved Organic Matter (DOM) | -23 |
| Marine Dissolved Organic Matter (DOM) | -23.5 |
| Marine Dissolved Organic Matter (DOM) | -21.4 |
| Marine Dissolved Organic Matter (DOM) | -20.5 |

*High 13C (C4) plants [*δ13C *n = 89; C:N n = 6]*

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| --- | --- | --- | --- |
|  | **Organic Matter** | **δ13Corg (‰)** | **C:N** |
| 1 | Peterson, B. J., Howarth, R. W., and Garritt, R. H., 1985, Multiple stable isotopes used to trace the flow of organic matter in estuarine food webs: Science, v. 227, p. 1361-1363. | | |
| Tropical C4 grasslands (*Spartina*) | -13.1 ± 0.8 (17) |  |
| 2 | Peterson, B. J., and Fry, B., 1987, Stable isotopes in ecosystem studies: Annual Reviews of Ecological Systems, v. 18, p. 293-320. | | |
| Tropical C4 grasslands (*Spartina*) | -13 |  |
| 3 | Kao, S. J., and Liu, K. K., 2000, Stable carbon and nitrogen isotope systematics in a human-disturbed watershed (Lanyang-Hsi) in Taiwan and the estimation of biogenic particulate organic carbon and nitrogen fluxes: Global Biogeochemical Cycles, v. 14, no. 1, p. 189-198. | | |
| C4 plants - Taiwan | -12.9 | 36.2 |
| C4 plants - Taiwan | -14.4 | 37.1 |
| 4 | Krishnamurthy, R. V., Bhattacharya, S. K., and Kusumgar, S., 1986, Palaeoclimatic changes deduced from 13C/12C and C/N ratios of Karewa lake sediments, India: Nature, v. 323, p. 150-152. | | |
| C4 | -14 |  |
| 5 | Marshall, J. D., Brooks, J. R., and Lajtha, K., 2007, Ch. 2 Sources of variation in the stable isotopic composition of plants, *in* Mitchener, R., and Lajtha, K., eds., Stable Isotopes in Ecology and Environmental Science, 2nd Edn.: Oxford, Blackwell, p. 22-60. | | |
| C4 | -14 |  |
| 6 | Peterson, B. J., and Howarth, R. W., 1987, Sulfur, carbon, and nitrogen isotopes used to trace organic matter flow in the salt-marsh estuaries of Sapelo Island, Georgia: Limnology and Oceanography, v. 32, p. 1195-1213. | | |
| *Spartina alterniflora* | -12.9 ± 0.5 (10) |  |
| 7 | Smith, B. N., and Epstein, S., 1971, Two categories of 13C/12C ratios for higher plants: Plant Physiology, v. 47, p. 380-384. | | |
| Gymnospermae - family Welwitschiaceae | -14.4 |  |
| Monocotyledoneae - family Potamogetonaceae | -5.6 |  |
| Monocotyledoneae - family Potamogetonaceae | -10.0 |  |
| Monocotyledoneae - family Potamogetonaceae | -10.9 |  |
| Monocotyledoneae - family Potamogetonaceae | -14.0 |  |
| Monocotyledoneae - family Hydrocharitaceae | -9.3 |  |
| Monocotyledoneae - family Cyperaceae | -11.5 |  |
| Monocotyledoneae - family Cyperaceae | -15.9 |  |
| Monocotyledoneae - family Gramineae | -13.1 |  |
| Monocotyledoneae - family Gramineae | -13.4 |  |
| Monocotyledoneae - family Gramineae | -14.0 |  |
| Monocotyledoneae - family Gramineae | -13.9 |  |
| Monocotyledoneae - family Bromeliaceae | -18.6 |  |
| Dicotyledoneae - family Amaranthaceae | -15.4 |  |
| Dicotyledoneae - family Chenopodiaceae | -14.0 |  |
| Dicotyledoneae - family Chenopodiaceae | -14.8 |  |
| Dicotyledoneae - family Chenopodiaceae | -15.1 |  |
| **Organic Matter** | **δ13Corg (‰)** | **C:N** |
| Dicotyledoneae - family Chenopodiaceae | -16.4 |  |
| Dicotyledoneae - family Chenopodiaceae | -16.7 |  |
| Dicotyledoneae - family Chenopodiaceae | -17.1 |  |
| Dicotyledoneae - family Chenopodiaceae | -17.6 |  |
| Dicotyledoneae - family Chenopodiaceae | -18.3 |  |
| Dicotyledoneae - family Chenopodiaceae | -18.0 |  |
| Dicotyledoneae - family Chenopodiaceae | -12.6 |  |
| Dicotyledoneae - family Saxifragaceae | -17.1 |  |
| 8 | Weiguo, L., Xiahong, F., Youfeng, N., Qingle, Z., Yunning, C., and Zhisheng, A. N., 2005, delta13C variation of C3 and C4 plants across an Asian monsoon rainfall gradient in arid northwestern China: Global Change Biology, v. 11, no. 7, p. 1094-1100. | | |
| C4 plants - Taiwan | -12.5 ± 0.4 (28) |  |
| 9 | Meyers, P. A., 1994, Preservation of elemental and isotopic source identification of sedimentary organic matter: Chemical Geology, v. 114, p. 289-302. | | |
| Salt grass - Nevada | -14.1 | 160 |
| Tumbleweed - nevada | -12.5 | 68 |
| Bloodgrass - Ghana | -11.1 | 42.09 |
| Wild millet - Ghana | -10.85 | 156.35 |

*Low 13C (C3) plants [*δ13C *n = 161; C:N n = 55]*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **δ13Corg (‰)** | **δ13Corg (‰)** | **C:N** |
| 1 | Latimer, J. S., Boothman, W. S., Pesch, C. E., Chmura, G. L., Pospelova, V., and Jayaraman, S., 2003, Environmental stress and recovery: the geochemical record of human disturbance in New Bedford Harbor and Apponagansett Bay, Massachusetts (USA): Science of The Total Environment, v. 313, no. 1-3, p. 153-176. | | |
| C3 (woody) plants | -26 |  |
| 2 | Peterson, B. J., and Fry, B., 1987, Stable isotopes in ecosystem studies: Annual Reviews of Ecological Systems, v. 18, p. 293-320. | | |
| C3 (woody) plants - leaves | -27.8 |  |
| 3 | Peterson, B. J., Howarth, R. W., and Garritt, R. H., 1985, Multiple stable isotopes used to trace the flow of organic matter in estuarine food webs: Science, v. 227, p. 1361-1363. | | |
| C3 (woody) plants - leaves | -28.6 ± 1.3 (4) |  |
| 4 | Kao, S. J., and Liu, K. K., 2000, Stable carbon and nitrogen isotope systematics in a human-disturbed watershed (Lanyang-Hsi) in Taiwan and the estimation of biogenic particulate organic carbon and nitrogen fluxes: Global Biogeochemical Cycles, v. 14, no. 1, p. 189-198. | | |
| C3 plants POM - Taiwan | -27.7 ± 1.7 (8) | 35.3 ± 8.9 (8) |
| 5 | Krishnamurthy, R. V., Bhattacharya, S. K., and Kusumgar, S., 1986, Palaeoclimatic changes deduced from 13C/12C and C/N ratios of Karewa lake sediments, India: Nature, v. 323, p. 150-152. | | |
| C3 | -27 |  |
| 6 | Marshall, J. D., Brooks, J. R., and Lajtha, K., 2007, Ch. 2 Sources of variation in the stable isotopic composition of plants, *in* Mitchener, R., and Lajtha, K., eds., Stable Isotopes in Ecology and Environmental Science, 2nd Edn.: Oxford, Blackwell, p. 22-60. | | |
| C3 | -27 |  |
| 7 | Garten, C. T., Hanson, P. J., Todd, D. E., Lu, B. B., and Brice, D. J., 2007, Natural15N- and13C-Abundance as Indicators of Forest Nitrogen Status and Soil Carbon Dynamics, Stable Isotopes in Ecology and Environmental Science, p. 61-82. | | |
| C3 - leaf fall -ridge |  | 65.5 ± 1.1 (15) |
| C3 - leaf fall -slope |  | 60.8 ± 2.4 (13) |
| C3 - leaf fall -valley |  | 37.8 ± 1.6 (14) |
| 8 | Peterson, B. J., and Howarth, R. W., 1987, Sulfur, carbon, and nitrogen isotopes used to trace organic matter flow in the salt-marsh estuaries of Sapelo Island, Georgia: Limnology and Oceanography, v. 32, p. 1195-1213. | | |
| C3 | -29.3 ± 1.4 (4) |  |
| 9 | Smith, B. N., and Epstein, S., 1971, Two categories of 13C/12C ratios for higher plants: Plant Physiology, v. 47, p. 380-384. | | |
| Bryophyta - family Sphagnaceae | -26 |  |
| Psilotinae - Psilotaceae | -29 |  |
| Sphenotinae - Equisetaceae | -28.6 |  |
| Gymnospermae - family Taxodiaceae | -25.4 |  |
| Gymnospermae - family Ginkgoaceae | -25.6 |  |
| Gymnospermae - family Araucariaceae | -25.9 |  |
| Gymnospermae - family Podocarpaceae | -26.6 |  |
| Gymnospermae - family Cycadaceae | -27 |  |
| **Organic Matter** | **δ13Corg (‰)** | **C:N** |
| Gymnospermae - family Pinaceae | -30.8 |  |
| Gymnospermae - family Gnetaceae | -30.2 |  |
| Monocotyledoneae - family Gramineae | -23.7 |  |
| Monocotyledoneae - family Gramineae | -24.2 |  |
| Monocotyledoneae - family Gramineae | -27.1 |  |
| Monocotyledoneae - family Gramineae | -28.8 |  |
| Monocotyledoneae - family Gramineae | -27.7 |  |
| Monocotyledoneae - family Gramineae | -28 |  |
| Monocotyledoneae - family Gramineae | -28.2 |  |
| Monocotyledoneae - family Gramineae | -29.5 |  |
| Monocotyledoneae - family Palmae | -25.3 |  |
| Monocotyledoneae - family Gramineae | -26.7 |  |
| Monocotyledoneae - family Iridaceae | -27.4 |  |
| Monocotyledoneae - family Typhaceae | -27.6 |  |
| Monocotyledoneae - family Pontederiaceae | -31.8 |  |
| Dicotyledoneae - family Plumbaginaceae | -23.2 |  |
| Dicotyledoneae - family Aizoaceae | -23.6 |  |
| Dicotyledoneae - family Verbenaceae | -23.8 |  |
| Dicotyledoneae - family Compositae | -24.2 |  |
| Dicotyledoneae - family Compositae | -27.6 |  |
| Dicotyledoneae - family Compositae | -27.8 |  |
| Dicotyledoneae - family Compositae | -28.1 |  |
| Dicotyledoneae - family Compositae | -30.5 |  |
| Dicotyledoneae - family Compositae | -31.6 |  |
| Dicotyledoneae - family Compositae | -34.3 |  |
| Dicotyledoneae - family Chenopodiaceae | -25.2 |  |
| Dicotyledoneae - family Chenopodiaceae | -26.5 |  |
| Dicotyledoneae - family Chenopodiaceae | -30.1 |  |
| Dicotyledoneae - family Rutaceae | -25.6 |  |
| Dicotyledoneae - family Magnoliaceae | -26.1 |  |
| Dicotyledoneae - family Leguminosae | -26.1 |  |
| Dicotyledoneae - family Leguminosae | -28.5 |  |
| Dicotyledoneae - family Leguminosae | -28.6 |  |
| Dicotyledoneae - family Cucurbitaceae | -26.2 |  |
| Dicotyledoneae - family Frankeniaceae | -26.4 |  |
| Dicotyledoneae - family Fagaceae | -26.5 |  |
| Dicotyledoneae - family Fagaceae | -28.9 |  |
| Dicotyledoneae - family Batidaceae | -26.7 |  |
| Dicotyledoneae - family Aceraceae | -26.7 |  |
| Dicotyledoneae - family Oleaceae | -26.8 |  |
| Dicotyledoneae - family Bombacaceae | -28 |  |
| Dicotyledoneae - family Proteaceae | -28.3 |  |
| **Organic Matter** | **δ13Corg (‰)** | **C:N** |
| Dicotyledoneae - family Proteaceae | -30.4 |  |
| Dicotyledoneae - family Salicaceae | -28.4 |  |
| Dicotyledoneae - family Euphorbiaceae | -28.7 |  |
| Dicotyledoneae - family Ericaceae | -28.7 |  |
| Dicotyledoneae - family Cruciferae | -28.8 |  |
| Dicotyledoneae - family Rhamnaceae | -29.1 |  |
| Dicotyledoneae - family Casuarinaceae | -29.1 |  |
| Dicotyledoneae - family Convolvulaceae | -30.3 |  |
| Dicotyledoneae - family Platanaceae | -30.5 |  |
| Dicotyledoneae - family Solanaceae | -30.7 |  |
| Dicotyledoneae - family Scrophulariaceae | -32.3 |  |
| Dicotyledoneae - family Scrophulariaceae | -34.1 |  |
| Dicotyledoneae - family Myrtaceae | -33.3 |  |
| 10 | Weiguo, L., Xiahong, F., Youfeng, N., Qingle, Z., Yunning, C., and Zhisheng, A. N., 2005, delta13C variation of C3 and C4 plants across an Asian monsoon rainfall gradient in arid northwestern China: Global Change Biology, v. 11, no. 7, p. 1094-1100. | | |
| C3 plant- Stipa | -26.7 ± 1.1 (38) |  |
| C3 plant- Lespedeza | -26.5 ± 0.8 (26) |  |
| C3 plant- Heteropappus | -28.2 ± 0.8 (7) |  |
| 11 | Meyers, P. A., 1994, Preservation of elemental and isotopic source identification of sedimentary organic matter: Chemical Geology, v. 114, p. 289-302. | | |
| Willow leaves - Nevada | -26.7 | 38 |
| Poplar leaves - Nevada | -27.9 | 62 |
| Pine needles - Nevada | -24.8 | 42 |
| Spruce needles - Michigan | -25.1 | 43 |
| Palm fronds - Ghana | -25.5 | 90.8 |
| Mangrove leaves - Malaysia | -27.1 |  |

*Soil [*δ13C *n = 11; C:N n = 22]*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Organic Matter** | **δ13Corg (‰)** | **C:N** |
| 1 | Harris, D., Horwáth, W. R., and van Kessel, C., 2001, Acid fumigation of soils to remove carbonates prior to total organic carbon or CARBON-13 isotopic analysis: Soil Science Society of America Journal, v. 65, p. 1853-1856. | | |
| Soil: Inceptisol: loamy, mixed, superactive, thermic Lithic Haploxerepts [Auburn] | -26.93 | 11.80 |
| Soil: Inceptisol: loamy, mixed, active, mesic shallow, Typic Dystroxerepts [Chawanakee] | -26.04 | 19.33 |
| Inceptisol: loamy skeletal, mixed, superactive, mesic, Typic Haploxerepts [Pardaloe] | -25.92 | 22.41 |
| Entisol: fine silty, siliceous, active, acid, thermic, Fluvaquentic Endoaquepts [Pophers] | -27.28 | 12.73 |
| 2 | Kao, S. J., and Liu, K. K., 2000, Stable carbon and nitrogen isotope systematics in a human-disturbed watershed (Lanyang-Hsi) in Taiwan and the estimation of biogenic particulate organic carbon and nitrogen fluxes: Global Biogeochemical Cycles, v. 14, no. 1, p. 189-198. | | |
| soil - Taiwan | -25.5 ± 1.3 (7) | 13.6 ± 4.5 (7) |
| 3 | Sollins, P., Spycher, G., and Glassman, C. A., 1984, Net nitrogen mineralization from light- and heavy-fraction forest soil organic matter: Soil Biology and Biogeochemistry, v. 16, p. 31-37. | | |
| Wind River - conifer |  | 37.2 |
| Wind River - alder/conifer |  | 25.6 |
| Cascade Head - conifer |  | 21.3 |
| Cascade Head - alder |  | 17.7 |
| H.J. Andrews |  | 26 |
| Waldo Lake |  | 27.5 |
| Monte Verde |  | 11.9 |
| La Selva - control |  | 11.8 |
| La Selva - cutover |  | 10.6 |
| Turrialba - control |  | 12.2 |
| Turriabla - devegetated |  | 13.9 |