Carbon isotope ratios in plant wax *n-alkanes* in sediments from the eastern Mediterranean Sea since the last glacial period

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Leaf-wax lipids from sedimentary regime such as the long-chain n-alkanes assimilate carbon isotope ratios that reflect carbon fixation pathway. The n-alkanes distributions, with a pronounced odd-over-even carbon number predominance and $\delta^{13}C$ values reveal a mixed origin. Consequently, n-alkane $\delta^{13}C$ value in sediment provides a clue to reconstruct past vegetation. In order to reconstruct past C3/C4 composition of vegetation cover in catchment area of the Nile River, we measured n-alkane $\delta^{13}C$ in sediment core samples at Hole 967B from the Eastern Mediterranean Sea recovered during the Ocean Drilling Program (ODP) Leg 160. Sediment samples for n-alkane $\delta^{13}C$ measurements were taken from uppermost 3 m of core samples at Hole 967B, which covers since the Last Glacial Maximum (LGM). In general, $\delta^{13}C$ of n-alkanes (C_{23} –C_{31}) at Hole 967B were within a range of C4 plants dominance (-24.44 to -31.97‰,) except for several specific time intervals where significantly negative $\delta^{13}C$ values (-38 to -43 ‰, VPDB) were shown. Such negative $\delta^{13}C$ values are only found in C3 plants in the tropical and subtropical Africa, where have a catchment area of the Nile River. Timings of the negative $\delta^{13}C$ values were observed during LGM, Bølling-Allerød, early Holocene, and late Holocene. Among them, negative $\delta^{13}C$ shift during early Holocene was the most pronounced. During this period, climate in the Africa was very humid known as African Humid Period (AHP) because of enhanced and northward penetration of the monsoonal rains. This event is also coincided with the beginning of sapropel S1 formation in the Eastern Mediterranean Sea. Our $\delta^{13}C$ records of n-alkanes at Hole 967B show vegetation changes in the eastern tropical and subtropical Africa since the LGM till now. Episodic flourish of C3 plants were suggested during AHP and some other time intervals perhaps due to monsoonal rainfall changes.