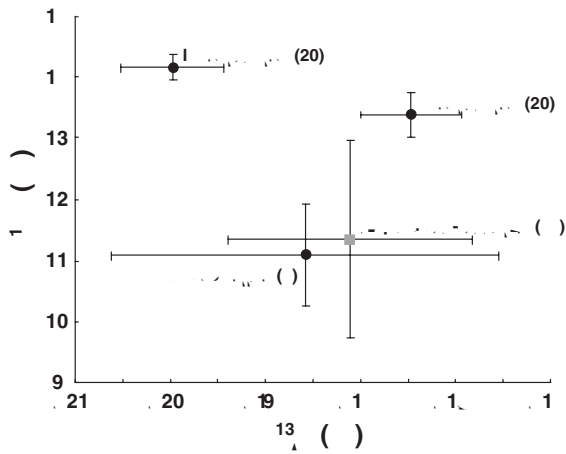

$n = 7$) - $\delta^{15}\text{N}$ -1
 $(-25.9 \pm 0.14\text{‰}, n = 6)$;
 -8548 A
 $(20.3 \pm 0.28\text{‰}, n = 8)$. , , 25.(82622

Isotope analysis

(^{15}N) - (^{13}C) .
 1992, K & (1998), (^{15}N) &
 (2002) (^{13}C) & , 1980, 1988,
 1995). A (*et al.* 1994,
 ,
 - & (^{13}C) *et al.* 1997,
 1997). (^{15}N) (^{13}C)
 $-1 \times 1000 \cdot \frac{^{15}\text{N}}{^{14}\text{N}} = \left(\frac{^{15}\text{N}/^{14}\text{N}}{^{15}\text{N}/^{14}\text{N}} - 1 \right)$
 ,
 2 : 1 : ,
 24 .)
 ((^{13}C) ,
 A A -
 : ,
 -21 : $(-28.0 \pm 0.08\text{‰},$



57% (95%
: 44 70%) , 36% (23 49%)
7% (3 11%)
: 61% (45 77%)
, 30% (13 47%) ;
49% (26 72%) , 47% (24 70%)
: $t_{42} = 0.81$, $P = 0.42$;
: $t_{42} = -1.27$, $P = 0.21$.
9% (3 15%)
3% (0 8%) .

(1) .

$F_{1,25} = 15.22$, $= 2.74$, $P = 0.0007$;
(1): $F_{1,25} = 7.15$, $= 0.33$, $P = 0.01$

($F_{1,25} = 12.88$, $= -2.65$, $P = 0.002$; 1: $F_{1,25} = 8.21$, $= 0.95$, $P = 0.009$).

RESULTS

(t - : $t_{46} = -7.39$,
 $P \leq 0.0001$)
: 9.91 , 1.57; : 9.87
, 1.93, $t_{46} = -0.08$, $P = 0.93$
(: 49.67 , 4.78;
: 49.77 , 3.34; $t_{28} = 0.06$, $P = 0.94$).

($F_{1,25} = 0.33$, $= -1.39$, $P = 0.57$; 1: $F_{1,25} = 7.68$, $= 1.14$, $P = 0.01$).

($F_{1,17} = 0.31$, $= 0.42$, $P = 0.59$; 1: $F_{1,17} =$

12.79, $t = 1.31$, $P = 0.003$),
 $(F_{1,17} = 0.17, t = -0.31, P = 0.67$;
 $t = 1: F_{1,17} = 12.24, t = 0.36, P = 0.004$)
 $(F_{1,17} = 0.33, t = -2.25$
 $P = 0.53; t = 1: F_{1,17} = 12.76, t = 1.22, P = 0.003)$

(1).

$t = 15$,
 $(t = 15: F_{1,40} = 2.33, t = 0.29,$
 $P = 0.13, t = 1: F_{1,40} = 20.1, t = 1.13, P < 0.001$;
 $t = 15: F_{1,40} = 1.78, t = 0.21, P = 0.19, t = 1:$
 $F_{1,40} = 19.9, t = 1.19, P < 0.001).$

$t = 15$

(1983, & 1999). -
, *et al.* (2007 , 2008)
- -

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