

**Transfer of seston lipids during a flagellate bloom from  
the surface to the benthic community in  
the Weddell Sea**

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Supplementary material

TABLE S1. – Monounsaturated fatty acids and polyunsaturated fatty acids tested for differences in the extraction method (% mean  $\pm$  SD). One-way ANOVA results for four different markers.

	C16:1(n-7)	C18:1(n-9)	C20:5(n-3)	C22:6(n-3)
Control (Rossi <i>et al.</i> 2006 methodology)	6.2 $\pm$ 1.3	7.7 $\pm$ 1.3	4.4 $\pm$ 0.5	11.6 $\pm$ 1.1
Microwave-assisted methodology	6.0 $\pm$ 0.8	7.2 $\pm$ 1.5	4.8 $\pm$ 1.3	11.4 $\pm$ 0.9
ANOVA Test	F <sub>1,8</sub> =0.1111; p=0.750	F <sub>1,8</sub> =0.2609; p=0.6277	F <sub>1,8</sub> =0.3936; p=0.5535	F <sub>1,8</sub> =0.1176; p=0.743

TABLE S2. – Fatty acid composition (as a % of the total fatty acids) in the Weddell Sea at three different depths (from 11 to 27 December 2003). Mean values and SD (standard deviation); N, Number of analysed filters per depth and day.

Fatty Acids	11 Dec 2003						14 Dec 2003					
	5 m (N=2)		50 m (N=2)		443 m (N=2)		5 m (N=3)		50 m (N=2)		449 m (N=3)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
C14:1	0	-	0	-	0	-	0	-	0	-	0	-
C14:0	0.7	0	1.2	0	0	-	6.1	0.2	5.4	0.1	3.8	0.1
C16:1 (n-7)	0.3	0	7.8	0.2	4.5	0	9	0.1	25.9	0.9	28	0.6
C16:1 (n-9)	0	-	2	0	0	-	5	0.1	0	-	0	-
C16:4 (n-3)	5.4	0.1	0	-	0	-	0	-	0	-	0	-
C16:0	30.3	0.5	17.4	0.4	28	1.2	30.8	0.5	26.3	1.5	20.2	0.9
C17:0	2.2	0.1	0	-	2.3	0.1	0.5	0.3	1.5	0.2	3.1	0.5
C18:4 (n-3)	1.5	0.1	25.9	0.5	10.8	0.8	7.2	0.2	18	0.5	12.2	1.2
C18:3 (n-3)	0	-	1	0.1	1.3	0.1	1.5	0.1	0	-	0	-
C18:3 (n-6)	0	-	0	-	0	-	0	-	0	-	0	-
C18:2 (n-6)	1.7	0	0	-	0	-	0	-	0	-	0	-
C18:2 (n-4)	0	-	0	-	0	-	0	-	0	-	0	-
C18:1 (n-9)	5.6	0	0	-	1.8	0	10.9	0.4	3.5	0	0	-
C18:1 (n-7)	4	0	0	-	0	-	4	0.1	0	-	0	-
C18:0	20.8	1	12.9	0.4	14.8	1.8	17.6	0.6	4.3	0.8	1.5	0.5
C20:5 (n-3)	4.2	0	14.8	0.9	8.5	0.5	4	0.3	8.7	0.6	4.8	0.7
C20:1 (n-9)	0	-	0	-	0	-	0	-	0	-	0	-
C20:0	0	-	0	-	0	-	0	-	0	-	0	-
C22:6 (n-3)	2.4	0.1	9	0.1	5.2	0.3	1.1	0.1	3.4	0.2	26.2	0.4
C22:2	0	-	0	-	0	-	0	-	0	-	0	-
C23:0	0	-	0	-	0	-	0	-	0	-	0	-
C24:1	7.8	0.3	3.9	0.1	2.8	0.1	0	-	0	-	0	-
C24:0	2.7	0	1.3	-	1.7	0.2	0	-	0	-	0	-
Other Fatty Acids	10.3		3		18.2		2.2		2.9		0.1	
TOTAL	100		100		100		100		100		100	
PUFA	19.5		66.4		35.6		19.3		38.9		48.1	
MUFA	17.7		13.7		9.1		28.9		29.4		28	
SAFA	62.8		19.9		55.3		51.8		31.7		24	

Fatty Acids	15 Dec 2003					
	5 m (N=3)		50 m (N=3)		456 m (N=2)	
	Mean	SD	Mean	SD	Mean	SD
C14:1	0.5	0.1	0.3	0	0.9	0
C14:0	5	0.1	3.1	0.3	2.9	0.1
C16:1 (n-7)	8.7	0.2	10.8	0.1	13	0.3
C16:1 (n-9)	0.6	0.3	0.6	0.1	0.7	0
C16:4 (n-3)	4.5	0.4	1.3	0	0	-
C16:0	28.7	0.7	26.4	0.5	31.8	0.6
C17:0	0.8	0.1	1.1	0.1	1.7	0
C18:4 (n-3)	8.5	0.3	11.2	0	14.4	0.1
C18:3 (n-3)	1.2	0	1.5	0.3	2.1	0
C18:3 (n-6)	0	-	0	-	0	-
C18:2 (n-6)	1.5	0.2	2	0	4.1	0.1
C18:2 (n-4)	0	-	0	-	0	-
C18:1 (n-9)	6	0.3	3	0.1	0	-
C18:1 (n-7)	1.5	0.1	0.7	0	0	-
C18:0	17.2	0.6	17.2	0.8	0	-
C20:5 (n-3)	5.6	0.1	9.6	0.2	10.6	0.8
C20:1 (n-9)	0	-	0	-	0	-
C20:0	0	-	0	-	0	-
C22:6 (n-3)	2.9	0.2	3.9	0.1	5.4	0
C22:2	0	-	0	-	0	-
C23:0	0	-	0	-	0	-
C24:1	1.5	0.2	1.5	0.1	1.9	0.1
C24:0	0.3	0.1	0.7	0.2	0	-
Other Fatty Acids	4.7		4.9		10.6	
TOTAL	100		100		100	
PUFA	31.1		40.6		49.2	
MUFA	19		17		16.5	
SAFA	49.9		42.3		34.3	

TABLE S3. – Fatty acid composition (as a % of the total fatty acids) in the Weddell Sea at three different depths (from 11 to 27 December 2003). Mean values and SD (standard deviation); N, Number of analysed filters per depth and day.

Fatty Acids	5 m (N=3)		18 Dec 2003				5 m (N=2)		20 Dec 2003			
	Mean	SD	50 m (N=2)	SD	456 m (N=3)	SD	Mean	SD	50 m (N=3)	SD	452 m (N=3)	SD
C14:1	0.3	0.2	0.5	0	0.5	0.1	1	0	1	0.1	0.7	0.1
C14:0	4.6	0.2	4.2	0.4	2.9	0.2	4.3	0.1	5.4	0.3	3	0
C16:1 (n-7)	15.4	0.1	9.9	0.1	11.7	0.2	11.2	0.4	7.9	0.3	9.8	0.6
C16:1 (n-9)	0.5	0.1	0.5	0.1	0.7	0	0.9	0	1.7	-	1.2	0.1
C16:4 (n-3)	3.2	0.1	2.6	0.2	0.8	-	2.5	0	4.7	0.1	1	0
C16:0	26.1	0.6	27.8	0.1	28.7	0.8	30.3	0.6	26.6	0.3	24.7	0.3
C17:0	1.5	0.1	1	0.1	1.3	0.2	1.6	0	1.4	0.1	1	0
C18:4 (n-3)	10.7	0.2	9.7	0	12.4	0.3	11.6	0.1	8.4	0.7	11.4	0.3
C18:3 (n-3)	0.8	0.1	1.3	0	1.7	0.1	1.9	0	1.6	0.1	1.5	0.1
C18:3 (n-6)	0	-	0	-	0	-	0	0	0	-	0	-
C18:2 (n-6)	1	0.1	1.8	0	2.7	0.1	3.6	0.1	2.6	0.1	2	0.1
C18:2 (n-4)	0	-	0	0	0	-	0	-	0	-	0	-
C18:1 (n-9)	3.9	-	4.7	0	1.9	0	0	0.2	0.9	0	0.9	0.1
C18:1 (n-7)	1.1	0.1	1.1	0	0.5	-	1.5	0.1	3.2	0.2	1	0
C18:0	10	1.1	18.1	0.1	10.5	0.9	6.6	0	19.2	0.4	21.8	0.7
C20:5 (n-3)	5.9	0.1	7.5	0	9.8	0	8.5	0	5.5	0.2	7.7	0.1
C20:1 (n-9)	0	0.2	0	0	0	-	0.7	0.1	1.3	0.1	0.3	0
C20:0	0	-	0	-	0	-	0	-	0	-	0	-
C22:6 (n-3)	11	0.2	3.5	0.1	4.4	0.5	4.4	2.2	3.4	0.3	4.6	0
C22:2	0	-	0	-	0	-	0	-	0	-	0	-
C23:0	0	-	0	-	0	-	0	-	0	-	0	-
C24:1	1	0.1	1.6	0	1.7	0	1.5	0.1	1.4	0	2.4	0.1
C24:0	0.3	0	0.6	0	0.4	0.2	0	-	0.1	0.01	1.1	0
Other Fatty Acids	2.9		3.6		7.2		7.8		3.6		4	
TOTAL	100		100		100		100		100		100	
PUFA	39.2		35.3		43.5		42.8		33.3		37.4	
MUFA	22.2		18.2		17		16.8		17.5		16.2	
SAFA	38.6		46.6		39.5		40.4		49.2		46.4	

  

Fatty Acids	5 m (N=3)		22 Dec 2003				5 m (N=3)		27 Dec 2003			
	Mean	SD	50 m (N=2)	SD	448 m (N=3)	SD	Mean	SD	50 m (N=3)	SD	470 m (N=3)	SD
C14:1	0.6	0	0.6	0	1.6	0.3	0.7	0	0.3	0	0.7	0.1
C14:0	3.7	0.2	3.1	0	0.9	0.1	3.7	0.2	3.7	0.1	1.9	0.1
C16:1 (n-7)	12.2	0.2	8.7	0.4	12.6	0.5	9.8	0.3	15	0.1	11.7	0.4
C16:1 (n-9)	0.7	0.3	0	0	0.5	0.1	0.5	0	0.4	0	0.5	0.1
C16:4 (n-3)	2.8	0.3	1.7	0	0.6	0	5.8	0	2.9	0.1	0	-
C16:0	23	0.8	19.8	0.1	23.1	0.1	24.4	1	22.8	0.4	22.5	0.6
C17:0	1	0.2	0.9	0	1.1	0.1	0.9	0.2	1	0.1	1.2	0.1
C18:4 (n-3)	12.5	0.4	13.8	0.2	13.7	0.1	8.2	0.7	12.3	0.2	12.6	0.2
C18:3 (n-3)	1.4	0.2	1.4	0.1	1.5	0.1	1.2	0.2	1.4	0.2	1.4	0.2
C18:3 (n-6)	0.9	0	0	-	0	-	0	-	0	-	0	-
C18:2 (n-6)	2.3	0.2	2.2	0.1	2.3	0.1	2.2	0.4	1.8	0.1	2.1	0.1
C18:2 (n-4)	0	0.3	0	0	0	-	1.7	0	1	0	0	-
C18:1 (n-9)	1.9	0.2	1.9	0.2	1.8	0.1	5.4	0	3.7	0.2	2.1	0
C18:1 (n-7)	1.7	0.3	2.9	-	1	-	5.9	0	3.1	0	0	-
C18:0	15	0.2	20.4	0.4	19.4	0.7	12	0.3	13.4	0.8	23.2	0.5
C20:5 (n-3)	8.2	0.2	9.1	0.5	8.5	0.3	5.8	0.3	7.8	0.3	8	0.2
C20:1 (n-9)	1	0.2	0.6	0	0.2	0	0.9	0	0.6	0	0	-
C20:0	0	0.2	0	-	0	-	1.6	0	0.8	0	0	-
C22:6 (n-3)	4.4	0.3	4.6	0.1	4.2	0.2	2.8	0.2	4.2	0.2	3.7	0.1
C22:2	0	-	0	-	0	-	0	-	0	0.1	0	-
C23:0	0	-	0	-	0	0.1	0	-	0	0.2	1.2	0
C24:1	1.9	0.2	2	0.1	1.5	0.1	1.1	0.3	1.7	0.3	1.1	0.2
C24:0	0.6	0.2	0.4	0	0.1	0	0.2	0.2	0.9	0.3	0	0.1
Other Fatty Acids	4.3		6.1		5.4		5.2		1.3		6	
TOTAL	100		100		100		100		100		100	
PUFA	42.2		43.3		40.7		36.4		41.6		37.4	
MUFA	20		16.6		19.2		24.3		24.8		16.2	
SAFA	37.9		40.1		40.1		39.3		33.7		46.4	