

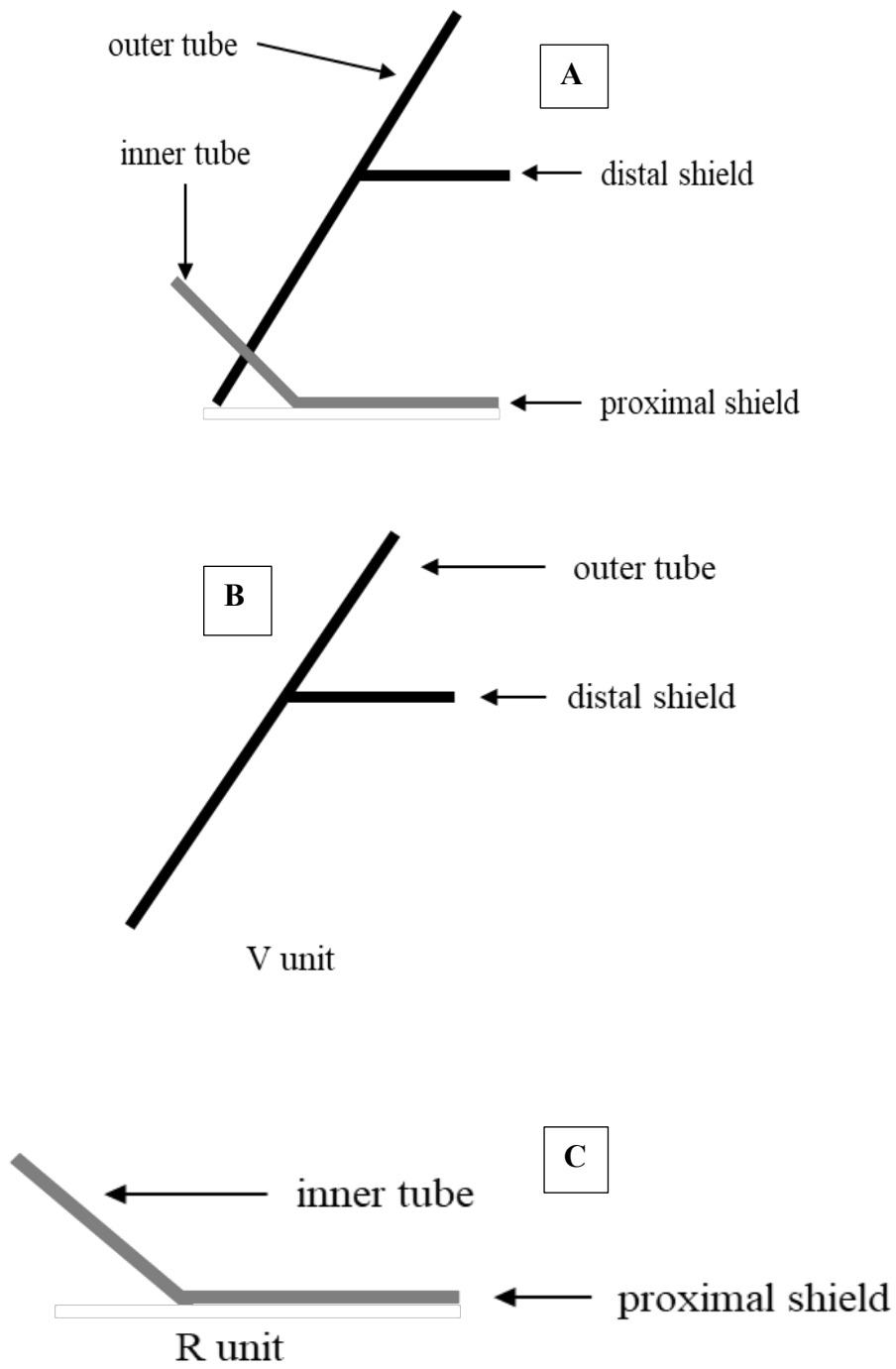
**Effect of KNO<sub>3</sub> on Lipid Synthesis and CaCO<sub>3</sub> Accumulation in *Pleurochrysis dentata* Coccoliths With a Special Focus on Morphological Characters of Coccolithophores**

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**Fig. S1:** Coccolith structure reported in previous research studies: **A:** V unit Side view. **B:** R unit Side view. **C:** V unit and R unit structure side view.

## Sequence-S1

The sequencing results of *Pleurochrysis* sp. 18s rRNA (DNA) sequence:

>Pleurochrysis sp. 18srRNA Sequence

>P. dentata LU118SrRNA

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NNNNNNNNNNNNNNNNNNNGTACCTTACNACTTGGATACCCGTAGTAATTCTAGAGC
TAATACATGCAGGAGTTCGTGCGCGGCTCGTCCGCGCGCGATGTATTTATTAGATAA
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TGGCTCTGACGCCGGCGATGGTTCATTCAAATTTCTGCCCTATCAGCTTTCGATGGTA
GGATAGAGGCCTACCATGGCGTTAACGGGTAACGGGGAATTAGGGTTCGATTCGGG
AGAGGGAGCCTGAGAGATTGNNGCTANNGNNNCCACAGTCCAGAGNNNNGAATGG
CAGTTTNCAGGCGCGTAAATNNNNNNNNNTGCCNNNNNNNNNNNGNNNTAANTNC
CTGACACAGGGAGGTAGTGACAANNGAANATANACAATACAGGGCCATCTTGGTCT
TGTAATTGGAATGAGTACAATTTACATCTCTTCACGAGGATCAATTGGAGGGCAAGT
CTGGTGCCAGCAGCCGCGGTAATTCCAGCTCCAATAGCGTATATTAAGTTGTTGCA
GTAAACGCTCGTAGTCGGATTTCCGGTTCGGTTGCGCCGGTCTGCCGATGGGTATG
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CTTGCATGGATTAGCATGGGATAATGAAATAGGACTCTGGTGCTATTTTGTGGTTT
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GATGTTTTCACTGATCAAGAACGAAAGTTAGGGGATCGAAGACGATCAGATACCGT
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CAAGGGCTGAAACTTAAAGGAATTGACGGAAGGGGCACCACCNAGGGAGTGGAGC
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ANGGATTGACAGANTTGAGNNANGCTCTTTCTTGATTNCGATGGGNTGGTGGTGCAT
GGCCNNGTTCTAAAGTTGGTGGAGTGANNTTGTGTCNNTGGTTAATTCCGTTNNNNNA
ANCGAANCNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNGANNGACCGCANNGCCCC
CAAACACCTTCGCGAACACTCNCGTTGGCGTTGAGCTTCTTAGAGGGACAACCTTGTC
TTCAACAAGTGGAAGTTTGCGGCAATAACAGGTCTGTGATGCCCTTAGATGTTCTGG
GCCGCACGCGCGCTACACTGATGCACTCAACGAGTTTTCTCCTTGCCGAGAGGTCC
GGGTAATCTTTTGAATTGCATCGTGATGGGGATAGATTATTGCAATTATTAATCTTC
AACGAGGAATTCCTAGTAAGCGCATGTCATCAGCGTGCGTTGATTACGTCCCTGCC
TTTGTACACACCCGCCGTCGCTCCTACCGATTGAATGATCCGGTGAGGCCCCCGGAC
TGTGGCAACGCAGTTGGTTCTCCAGCCGCGATGCCGCGGGAAGCTGTCCAAACCTTA
TCATTNGAGANNNNNNNNNNNNNNNNNNNNNN
```

**Table-S1:** Lists the NCBI BLAST results for the *Pleurochrysis sp.* 18srRNA gene sequences:

<b>Description</b>	<b>Max score</b>	<b>Total score</b>	<b>Query cover</b>	<b>E value</b>	<b>Perc. ident</b>	<b>Accession</b>
Pleurochrysis dentata HAP6	1483	2729	88%	0	96.89%	AJ544121.1
Chrysotila sp. 1 JIK-2013 strain A13 801	1478	2727	88%	0	96.78%	KJ020926.1
Chrysotila sp. 1 JIK-2013 strain A13 799	1478	2727	88%	0	96.78%	KJ020925.1
Chrysotila sp. 1 JIK-2013 strain A13 798	1478	2727	88%	0	96.78%	KJ020924.1
Chrysotila sp. 1 JIK-2013 strain A13 797	1478	2727	88%	0	96.78%	KJ020923.1
Chrysotila sp. 1 JIK-2013 strain A13-255	1478	2727	88%	0	96.78%	KF696662.1
Pleurochrysis dentata strain CCAP 944/2	1478	2721	88%	0	96.78%	KJ756811.1
Pleurochrysis placolithoides ALGO HAP59bis	1478	2703	88%	0	96.78%	AM490977.2
Pleurochrysis sp. MBIC10549	1478	2727	88%	0	96.78%	AB183616.1
Pleurochrysis dentata CCAP 904/1	1474	2620	85%	0	96.67%	MG022746.1
Pleurochrysis sp. ALGO	1472	2703	88%	0	96.67%	AM490975.2
Pleurochrysis sp. NMBjih026	1472	2717	88%	0	96.67%	EF208116.1
Pleurochrysis sp. MBIC10443	1472	2655	88%	0	96.67%	AB183596.1
Chrysotila carterae CCAP 961/1	1461	2669	90%	0	96.45%	MG022757.1
Chrysotila stipitata A13-253	1461	2675	90%	0	96.45%	KF728655.1
Chrysotila stipitata A13-250	1461	2675	90%	0	96.45%	KF728654.1
Chrysotila stipitata A13-110	1461	2675	90%	0	96.45%	KF696663.1
Pleurochrysis scherffelii ALGO HAP11	1461	2671	89%	0	96.45%	AM490978.2
Pleurochrysis carterae HAP1	1461	2666	89%	0	96.45%	AJ544120.1
Chrysotila pseudoroscoffensis CCAP 912/1	1456	2612	88%	0	96.34%	MG022748.1
Pleurochrysis carterae KMMCC H-19	1456	2653	90%	0	96.34%	HQ877918.1
Pleurochrysis pseudoroscoffensis ALGO HAP48	1456	2608	88%	0	96.34%	AM490973.2
Pleurochrysis gayraliae partial ALGO HAP10	1456	2603	88%	0	96.34%	AM490972.2

**Table-S2:** Statistical significance analysis of KNO<sub>3</sub> concentration and its effect on CaCO<sub>3</sub>

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Concentration mmol·L <sup>-1</sup>	N	alpha = 0.05				
		1	2	3	4	5
0.00	3	.039700				
0.25	3		.061800			
0.50	3			.070400		
1.00	3				.078000	
0.75	3					.100100
Significance		1.000	1.000	1.000	1.000	1.000

**Table-S3:** Statistical significance analysis of KNO<sub>3</sub> concentration and its effect on total lipid content in *Pleurochrysis dentata*.

Concentration mmol·L <sup>-1</sup>	N	alpha = 0.05				
		1	2	3	4	5
1.00	3	.13670000				
0.75	3		.19000000			
0.50	3			.25670000		
0.25	3				.31980000	
0.00	3					.33610000
Significance		1.000	1.000	1.000	1.000	1.000

**Table-S4:** Statistical significance analysis of KNO<sub>3</sub> concentration and its effect on total carbohydrate content in *Pleurochrysis dentata*.

Concentration mmol·L <sup>-1</sup>	N	alpha = 0.05				
		1	2	3	4	5
1.00	3	.21077110				
0.75	3		.22264591			
0.50	3			.27014383		
0.25	3				.30139005	
0.00	3					.33701315
Significance		1.000	1.000	1.000	1.000	1.000

**Table-S5:** Statistical significance analysis of KNO<sub>3</sub> concentration and its effect on total protein content in *Pleurochrysis dentata*.

Concentration mmol·L <sup>-1</sup>	N	alpha = 0.05				
		1	2	3	4	5
0.00	3	.27212107				
0.25	3		.28424314			
0.50	3			.29030301		
0.75	3				.31143105	
1.00	3					.32868696
Significance		1.000	1.000	1.000	1.000	1.000

### **Preparation of 18S rRNA cDNA for polymerization and sequencing:**

- a) Firstly, we have used EZ-10 Spin column plant RNA mini-preps kit BioBasic® Canada Inc for isolating the total mRNA. Later we have used 5X All-in-one RT Master Mix to convert the above isolated mRNA to cDNA.
- b) We have polymerized the 18S gene products using the standard 18S rRNA forward: GAAACTGCGAATGGCTCATT and reverse: CCTTCTGCAGGTTACCTAC primers and above isolated *P. dentata* cDNA sequences using Bio-Rad® PCR machine using the standard conditions.
- c) The polymerized 18S rRNA gene products obtained were characterized using 1% agarose gel electrophoresis to characterize the obtained PCR product. Finally, the above characterized 18S rRNA product was retrieved using the Gel/PCR DNA fragment extraction kit.
- d) The gene product obtained from the gel extraction kit is further sent to the sequencing company.

### **Sequence-S2**

The sequencing results of *Pleurochrysis* sp. cDNA sequence coding for 18s rRNA

>Pleurochrysis sp. 18srRNA (cDNA) Sequence

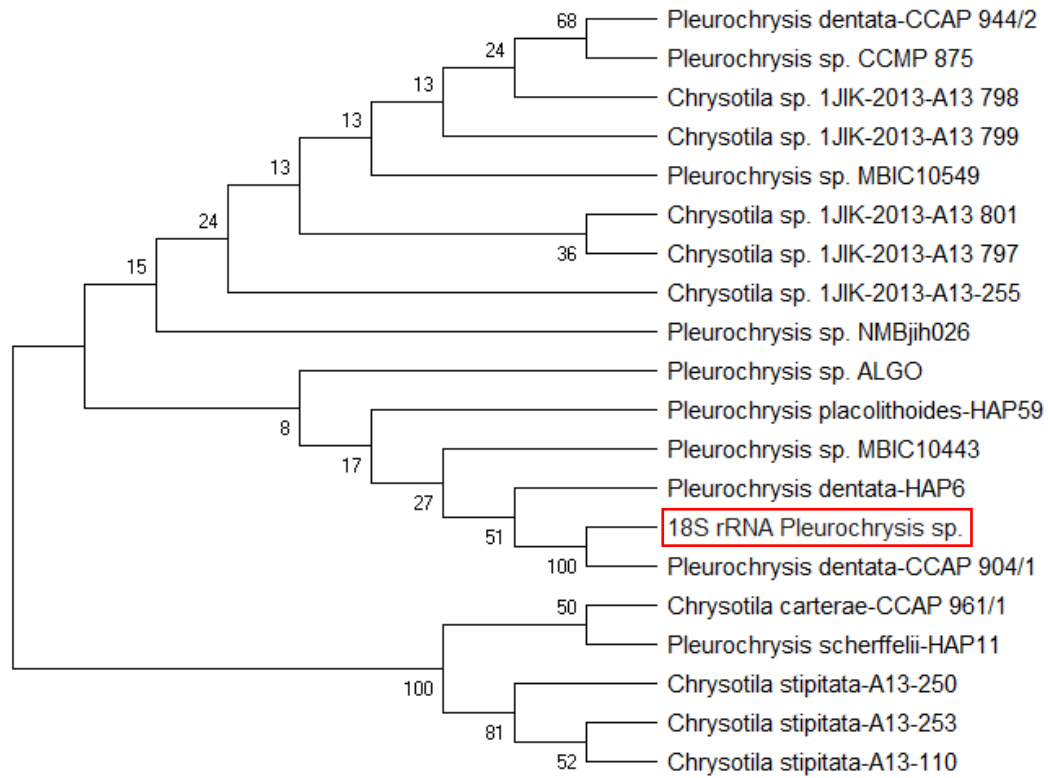
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CGGCGATGGTTCATTCAAATTTCTGCCCTATCAGCTTTCGATGGTAGGATAGAGGCCTAC
CATGGCGTTAACGGGTAACGGGGAATTAGGGTTCGATTCCGGAGAGGGAGCCTGAGAGA
TGGCTACCACATCCAAGGAAGGCAGCAGGCGGTAATTTGCCCGAATCCTGACACAGGG
AGGTAGTGACAAGAAATAACAATACAGGGCCATCTTGGTCTTGTAATTGGAATGAGTAC
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TCAGGTCGGTTGCTCCGGTCTGCCGATGGGTATGCACTGGTGGAGTCAGCCTTTCTCCG
GAGACCGCGCCTCCTCTTAGCTGAGCGGGTGCGGGAGACGGATCGTTTACTTTGAAAAA
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GGACTCTGGTGCTATTTTGTGGTTTCGAACACCGGAGTAATGGTCAACAGGGACAGTCA
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TGCGAAAGCATTTCAGGGATGTTTTCACTGATCAAGAACGAAAGTTAGGGGATCGAA
TACGATCAATCCCGTCGTAGTCTTACCCATTAACCATGCCCGACTAGGGAATTGTTCTC
TTCTGACTTTCTTCTCTACTGATAGGTTTGGACAGCTTCCC CGGCATCGCGGCTGGAG
AACCAACTGCGTTGCCACAGTCCGGGGGCCTCACCGGATCATTCAATCGGTAGGAGCGA
CGGGCGGTGTGTACAAAGGGCAGGGACGTAATCAACGCACGCTGATGACATGCGCTTAC
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CACAATGTCTGGACCAGGCTGGTTATGGCGTGTGAGTCAAATTAAGCCGCAGGCTCCAC  
TCCTGGTGGTGCCCTTCCGTCAATTCCTTTTAAGTTTCAGCCTTGCGACCATACTCCCCC  
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TCCCCTAACTTTTCGTTCTTGATCAGTGAAAACATCCCTTGGCAAATGCTTTTCGCAGTGGT  
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CCTATTTTCATAATCCATGCTATATCATGCAAAGCCGGTGCTGGCCTGCTGTGAACACTTCT  
GAATTTTTTTTCCAAGTTAACCGAATCGGATCTCTCCTTACCGCCCCGTCTCCATGCTATT  
AAAATGT



**Table-S6:** Lists the NCBI BLAST results for the *Pleurochrysis sp.* 18srRNA-cDNA (mRNA coding for 18srRNA converted to cDNA) sequences:

Description	Max score	Total score	Query cover	E value	Perc. ident	Accession
<b>Pleurochrysis dentata isolate HAP6</b>	1657	3174	95%	0	98.41%	AJ544121.1
Pleurochrysis dentata isolate CCAP 904/1	1652	3071	92%	0	98.31%	MG022746.1
Chrysotila sp. 1 JIK-2013 strain A13 801	1652	3174	96%	0	98.31%	KJ020926.1
Chrysotila sp. 1 JIK-2013 strain A13 799	1652	3174	96%	0	98.31%	KJ020925.1
Chrysotila sp. 1 JIK-2013 strain A13 798	1652	3174	96%	0	98.31%	KJ020924.1
Chrysotila sp. 1 JIK-2013 strain A13 797	1652	3174	96%	0	98.31%	KJ020923.1
Chrysotila sp. 1 JIK-2013 strain A13-255	1652	3171	95%	0	98.31%	KF696662.1
Pleurochrysis dentata strain CCAP 944/2	1652	3169	96%	0	98.31%	KJ756811.1
Pleurochrysis sp. MBIC10549	1652	3174	96%	0	98.31%	AB183616.1
Pleurochrysis sp. ALGO	1646	3147	95%	0	98.20%	AM490975.2
Pleurochrysis sp. NMBjih026	1646	3163	95%	0	98.20%	EF208116.1
Pleurochrysis placolithoides ALGO HAP59bis	1640	3147	95%	0	98.10%	AM490977.2
Pleurochrysis sp. MBIC10443	1629	3097	95%	0	97.88%	AB183596.1
Chrysotila carterae isolate CCAP 961/1	1624	3104	95%	0	97.78%	MG022757.1
Chrysotila stipitata strain A13-253	1624	3113	96%	0	97.78%	KF728655.1
Chrysotila stipitata strain A13-250	1624	3113	96%	0	97.78%	KF728654.1
Chrysotila stipitata strain A13-110	1624	3113	96%	0	97.78%	KF696663.1
Pleurochrysis scherffellii ALGO HAP11	1624	3108	95%	0	97.78%	AM490978.2
Pleurochrysis sp. CCMP 875	1622	3095	96%	0	97.98%	AJ246265.1



**Fig S2:** The phylogenetic analysis of the BLAST results obtained for the *Pleurochrysis* sp. 18S rRNA (cDNA) sequence.