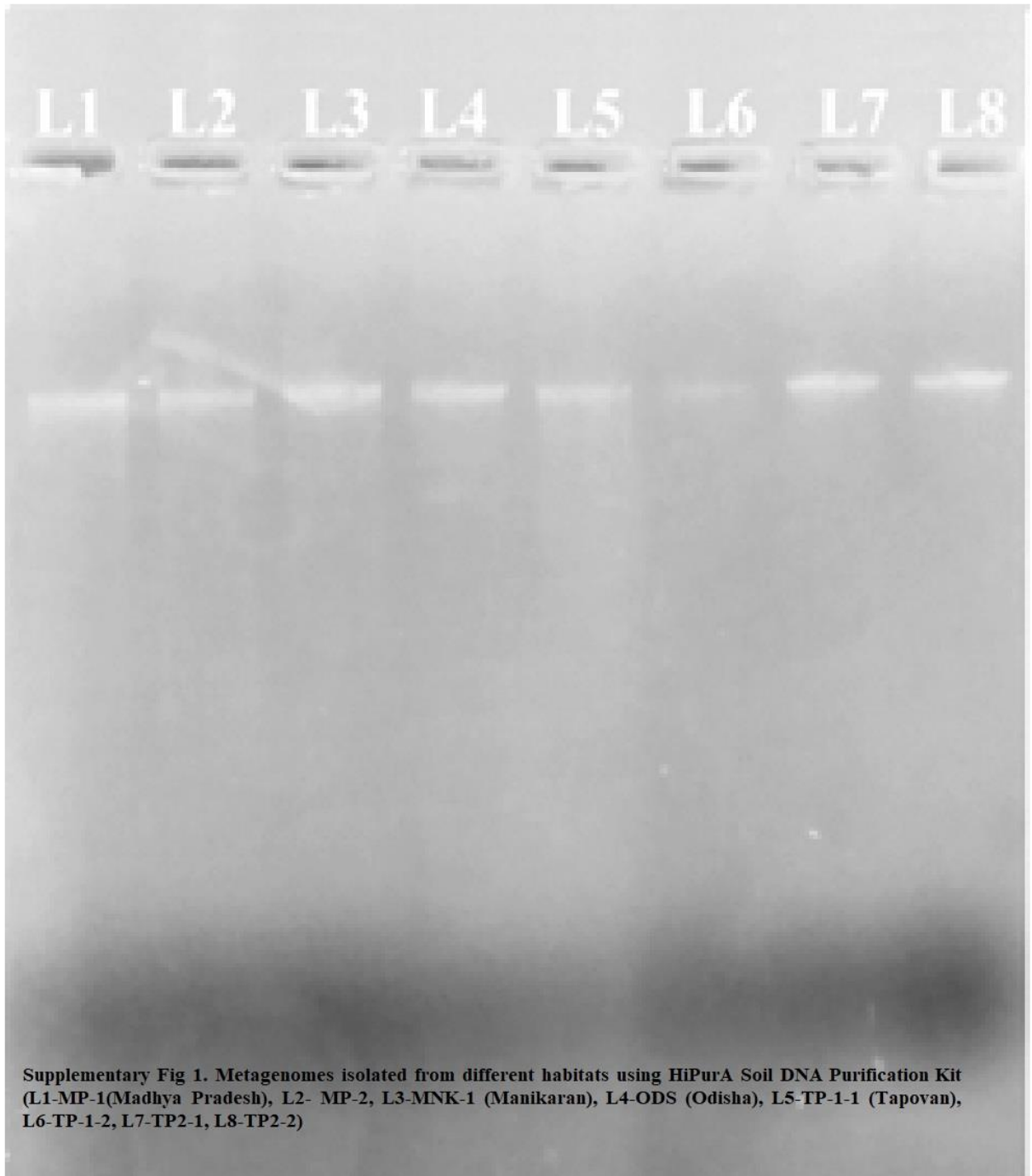


Supplementary Information



>Forward ODS_Amylase 9

```
AGGGACAGTCCTCTAGTTTCTAGTCGCTGCTGCAAGCC AAGGATCGACCAACGGGGACTGAATCTGCCCCTCAGATTC
TTAACCCTGGTTCAATGGGTTGGGATGTCCTGCTCACGGCTCTGCCCCGGGAAAAATTTTGTGCCCCCTGATTC
GCCGCTTTAAAGAACAGCCAAATAGAAGGGAATGGGCTTCCCCTGTCGCCCGAGAAATGTCATGGTGGGGAGGT
AATCACCGGAGAGATCCGCACCCATAATGTTTTCCTGCTTTTAAAGA TCAAATCAATTTTGTGTTCAAGGCAGGAAAT
TCGGGGTGGGAGTCTCCCTTCCACCCGGACGTAATCCCGGAAAAAAAACATGAGGACCCTCCAGATTACCTGTGAG
AATAAAAAACGGGAGC AAACGGTTTAAACAAAAATTTGGACAAAATCCACTCAAAACGAATTTGCCCTCTTGTGTTGG
GGGGCCAGGGGGTTATCGAACCAAAAGGGTAAATCCAACATGTTTCAAATGGGGAAAGCCTTTGTGTA AAAACGAAACA
CCACTGGTTGAAACAAATTTTCCCTCAATATCAATAAACCCCGCCCTCCCTCTGTGTTCCTCATGGCCAAACGAGT
GTGTGACATGTAGTAGATAGAAATTTCCCCCAACGATCAACACACCACCATGAAAACATGGAAATATTAATAATTTTG
ATGTATTTGTTCCTCCACCAATCAGTCTTTTATTGAATGACAGCGGCTGCAAAAGATCCAACTCTCCCTAGGCAC
CAAAATTAATAATACAGACCAGTGAAGCTCGCGGC TGAACATCCAGTATATAATGACTTTTATCTTACCGGAGCTA
TGTGGTTATCCACTTACATGGTAAGCGCAAGTGTAGTCTCTATACATCCCAATCGCACAGA TCTGACCC TGGCCTT
CAGTATATCCATGTCAG
```

>Reverse ODS_Amylase 9

```
NNNNNNNNNATGCTGACGCTGTTATTTGCGCTCATCTTCTGCTGCTCATCTTCTGACAGCAGCGGGGCAAAATC
TTAATGGGACGGCTGATGTCAGTATTTTGAATGGTACATGCCCAATGACGGCCAAACATTTGGAAGCGCTTGC AAAACG
ACTCGGCATATTTGGCTGAACACGGTATATAC TGCCTGCTGGATTTCCCGCCGATATAAGGGAACGAGCC AAGCGG
ATGTGGGCTACGGTGCCTTACGACCTTTATGATTTAGGGGAGTTTCATCAAAAAGGGACGGTTCGGACAAAGTACG
GCACAAAAGGAGAGCTGCAATCTGCGATCAAAAGTCTTCAATCCCGGACATTAACGTTTACGGGGAATGTTGTCAT
TCAACCACAAAAGGCGGGCTGATGCGACCGAAGATGTAACCGCGGTTGAAATGATCCCGCTGACCGCAACCGCG
TAATTTACAGGAGAACACCGAATTAAGGCC TGGACACATTTTCTATTTTCCGGGGCGCGGAGCACATACAGCGATTT
TAAATGGCATTTGGTACCATTTTGACGGAACCGATTTGGGACGAGTCCGAAAGCTGAACCGCATCTATAAGTTTCAA
GGAAAAGCTTTGGGATTTGGGAAAGTTTCCAATGAAAACGGCAACTATGATTAATTTGATGATGCTGACATCGATTAT
GACCATCTGATGTCGACAGAAATTAAGAGATGGGGCAC TGGGATGCCAAATGAAC TGC AATTTGACGTTTCT
CGTCTGTATGCTGTCAAAACATTAATTTTCTTTTGTGCGGATTTGGTTAATCAATGTCAGGGAAAAACGGGGA
AGGAAATGTTTACGGTAGCTGAATATTTGGCAGAAATGACTTTGGGCGCGCTGGAAAACATTTTGAACAAAACAAAT
TTAATCATTTACAGTGTTTGACGTGCGCTTCAATATCAGTTCATGCTGCAATCGACACAGGGAGGGCGCTATGATAT
GAGGAAATGCTGTAACAGTACGGTCGTTTCAAGCATCCGTTGAAAGCGGTTACATTTGTCGATAAACCATGATACA
CAGCCGGGGCAATCGCTTGAGTCGACTGTCCAAACATGGTTTAAAGCCGCTTGCTTACGCTTTATTTCAACAAGGG
AATCTGGAACCCCTCAGGTTTCTCCGGGAATGTACGGGACGAAAGGAAACTCCANCCCGAAATTTCTGCTTGA
AACCAAAATGAAACCGATTTTAAANCGAAAAACCTTTGGTTCCGGGCCACCTNATTTTFTNNCCCCTTANNNTTTC
CCGTGGGA AAAGGAAGAAAACCTNNTTTC AANNCGNNTTGNCGCTTTNNAAAA NAGACCCCGGGGGAAAAA
AAAATTTTNGCCGAAAACCCGAAAAGGAGAAAATTTTCAAANN TTGGGACGGNNINNNATATAAAAAGGGGGT
ANATCTANNNGCCGGCTNNTTNTTTTAAAAAGAAAAAAAANAAGAATTTANNNNNNTTTTNTTTT
```

Supplementary Fig 2. The nucleotide sequence of cloned amylase gene fragment amplified from e-DNA of Atri geothermal Spring of Odisha



Supplementary Fig 3. Homology modelling of the translated gene sequence coding protein showing similarity with alpha amylase using Phyre 2 program

a

XXXLLTLLFALIFLLPHSAAAAANLNGTLMQYFEWYMPNDGQHWKRLQND SAYLAEHGITAVWI
 PPAYKGT SQADVGYGAYDLYDLGEFHQKGTVRTKYGTGKELQSAIKSLHSRDIINVYGDVVINHK
 GGADATEDVTAVEVDPADRNRVISGEHRIKAWTHFHFPGRGSTYSDFKWHWYHFDGTDWDESRLNR
 LNRIYKFGKAWDWEVSNENGN DYLMYADIDYDHPDVAAEIKRWGTWYANELQLDGFRLDAVK
 HIKFSFLRDWVNHVREKTGKEMFTVAEYWQNDLGALENYLNKTNFNHVSFVDPVPLHYQFHAASTQ
 GGGYDMRKL LNSTVVS KHPLKAVTFVDNHDTQPGQSLESTVQTWFKPLAYAFIL TRESGNPQVF
 SGNCTGRKETPXRNSCLET KIEPILXRKNLWFRPTXFFXPLXFPVVGKGRKXFXKXLLXKXDP
 GGGKNFXPKNPEKEKFSXXGTXXX-XGGX SXXPAXXFLKEKXRI XXXFFF

b amylase A, partial [*Bacillus licheniformis*]

Sequence ID: [AMJ27400.1](#) Length: 469 Number of Matches: 1

Range 1: 1 to 398 [GenPept](#) [Graphics](#) [Next Match](#) [Previous](#)

Score	Expect	Method	Identities	Positives	Gaps	Frame
780 bits(2015)	0.0	Compositional matrix adjust.	377/398(95%)	384/398(96%)	1/398(0%)	+3
Query 48		PHSAAAAANLNGTLMQYFEWYMPNDGQHWKRLQND SAYLAEHGITAVWI			227	
Sbjct 1		PHSAAAAANLNGTLMQYFEWYMPNDGQHWKRLQND SAYLAEHGITAVWI			60	
Query 228		VGYGAYDLYDLGEFHQKGTVRTKYGTGKELQSAIKSLHSRDIINVYGDVVINHKGGADATE			407	
Sbjct 61		VGYGAYDLYDLGEFHQKGTVRTKYGTGKELQSAIKSLHSRDIINVYGDVVINHKGGADATE			120	
Query 408		DVTAVEVDPADRNRVISGEHRIKAWTHFHFPGRGSTYSDFKWHWYHFDGTDWDESRLNR			587	
Sbjct 121		DVTAVEVDPADRNRVISGEHRIKAWTHFHFPGRGSTYSDFKWHWYHFDGTDWDESRLNR			180	
Query 588		IYKFQKAWDWEVSNENGN DYLMYADIDYDHPDVAAEIKRWGTWYANELQLDGFRLDAV			767	
Sbjct 181		IYKFQKAWDWEVSNENGN DYLMYADIDYDHPDVAAEIKRWGTWYANELQLDGFRLDAV			240	
Query 768		KHIKFSFLRDWVNHVREKTGKEMFTVAEYWQNDLGALENYLNKTNFNHVSFVDPVPLHYQFH			947	
Sbjct 241		KHIKFSFLRDWVNHVREKTGKEMFTVAEYWQNDLGALENYLNKTNFNHVSFVDPVPLHYQFH			300	
Query 948		AASTQGGGYDMRKL LNSTVVS KHPLKAVTFVDNHDTQPGQSLESTVQTWFKPLAYAFILT			1127	
Sbjct 301		AASTQGGGYDMRKL LNSTVVS KHPLKAVTFVDNHDTQPGQSLESTVQTWFKPLAYAFILT			360	
Query 1128		RESGNPQVFSGNCTG-RKETPXRNSCLET KIEPILXRK	1238			
Sbjct 361		RKSGYPHVFSGDMYGTKRNSPPEILALKHKIEPILKAR	398			

Supplementary Fig 4 a. Longest ORF in the sequence of the cloned gene present in T vector. **b.** Sequence of the cloned gene analysed using BLASTx tool using translated nucleotide sequence as query and searching protein database.

```

Query 371  GGTCAACAACCAAAAGGCGCGCTGATGCGACCGAAGATGTAACCGCGTTGAAGTCGA 430
          |||
Sbjct 570  GGTCAACAACCAAAAGGCGCGCTGATGCGACCGAAGATGTAACCGCGTTGAAGTCGA 629

Query 431  TCCCCGTGACCCGAACCGCGTAATTTCAAGGAGAACACCGAATTAAGCCTGGACACATTT 490
          |||
Sbjct 630  TCCCCGTGACCCGAACCGCGTAATTTCAAGGAGAACACCGAATTAAGCCTGGACACATTT 689

Query 491  TCATTTTCCGGGGCGCGGAGCACATACAGCGATTTAAATGGCATTGGTACCATTTTGA 550
          |||
Sbjct 690  TCATTTTCCGGGGCGCGGAGCACATACAGCGATTTAAATGGCATTGGTACCATTTTGA 749

Query 551  CCGAACCGATTGGGACGAGTCCCGAAAGCTGAACCGCATCTATAAGTTTCAAGGAAAAGGC 610
          |||
Sbjct 750  CCGAACCGATTGGGACGAGTCCCGAAAGCTGAACCGCATCTATAAGTTTCAAGGAAAAGGC 809

Query 611  TTGGGATTGGGAAGTTTCCAATGAAAACGGCAACTATGATTATTTGATGTATGCCGACAT 670
          |||
Sbjct 810  TTGGGATTGGGAAGTTTCCAATGAAAACGGCAACTATGATTATTTGATGTATGCCGACAT 869

Query 671  CGATTATGACCATCCTGATGTCGACGACAGAAATTAAGAGATGGGGCACTTGGTATGCCAA 730
          |||
Sbjct 870  CGATTATGACCATCCTGATGTCGACGACAGAAATTAAGAGATGGGGCACTTGGTATGCCAA 929

Query 731  TGAATGCAATTGGACGGTTCCCGTCTTGATGCTGTCAAAACACATTAATTTTCTTTTTT 790
          |||
Sbjct 930  TGAATGCAATTGGACGGTTCCCGTCTTGATGCTGTCAAAACACATTAATTTTCTTTTTT 989

Query 791  GCGGGATTGGGTTAATCATGTGAGGAAAAAACGGGGAAGGAAATGTTTACGGTAGCTGA 850
          |||
Sbjct 990  GCGGGATTGGGTTAATCATGTGAGGAAAAAACGGGGAAGGAAATGTTTACGGTAGCTGA 1049

Query 851  ATATTGGCAGAATGACTTGGGCGCGCTGAAAACTATTTGAACAAAACAAATTTAATCA 910
          |||
Sbjct 1050  ATATTGGCAGAATGACTTGGGCGCGCTGAAAACTATTTGAACAAAACAAATTTAATCA 1109

Query 911  TTCAGTGTGTTGACGTGCCGCTTCAATATCAGTTCATGCTGCATCGACACAGGGAGGCGG 970
          |||
Sbjct 1110  TTCAGTGTGTTGACGTGCCGCTTCAATATCAGTTCATGCTGCATCGACACAGGGAGGCGG 1169

Query 971  CTATGATATGAGGAAATTGCTGAACAGTACGGTCGTTTCCAAGCATCCGTTGAAAGCGGT 1030
          |||
Sbjct 1170  CTATGATATGAGGAAATTGCTGAACAGTACGGTCGTTTCCAAGCATCCGTTGAAAGCGGT 1229

Query 1031  TACATTTGTCGATAACCATGATACACAGCCGGGGCAATCGCTTGAGTCGACTGTCCAAAC 1090
          |||
Sbjct 1230  TACATTTGTCGATAACCATGATACACAGCCGGGGCAATCGCTTGAGTCGACTGTCCAAAC 1289

Query 1091  ATGGTTTAAGCCGCTTGCTTACGCTTTTATTCTCACAGGGAATCTGSAACCCCTCAGGT 1150
          |||
Sbjct 1290  ATGGTTTAAGCCGCTTGCTTACGCTTTTATTCTCACAGGGAATCTGSAACCCCTCAGGT 1349

Query 1151  TTTCTCCGGGAAT-TGTACGGGACGAAAGGAAACT-CCANCCGAAATTCCTGCCTTGAA 1208
          |||
Sbjct 1350  TTTCTACGGGATATGTACGGGACGAAAGGAGACTCCACGCGGAAATTCCTGCCTTGAA 1409

Query 1209  AC-CAAAATTGAACCGATTTTAAAN-CGAAAAAAC 1241
          |||
Sbjct 1410  ACACAAAATTGAACCGATCTTAAAAGCGAGAAAAAC 1444

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Supplementary fig 5. BLAST n search exhibiting nucleotide similarity of query sequence with amylase gene of *Bacillus licheniformis* 548.