

Images:



(a)

(b)

Figure 1: *Cucumis melon* sample (a) kept in the vessel in the form of small pieces (b) kept on a table in the form of two fruits and cut pieces.



Figure 2: Isolated Colonies on petri-plate.

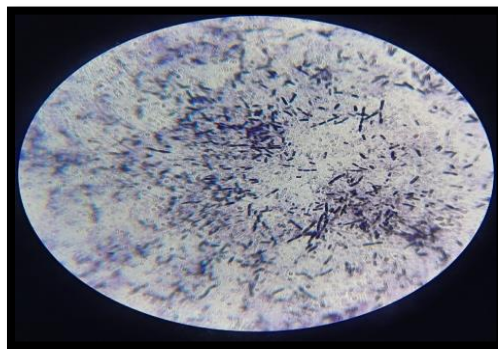


Figure 3: Gram Positive Rods



Figure 4: Starch hydrolysis test (positive)

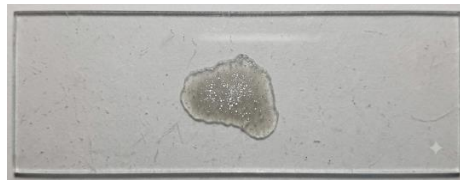
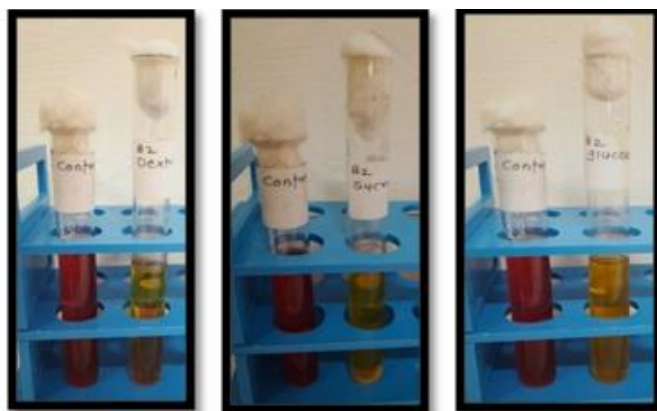


Figure 5: Catalase Test Positive



(A) Dextrose

(B) Sucrose

(C) Glucose

Figure 6: shows the positive result for the test tubes A, B, and C (from left) for sugars dextrose, sucrose and glucose respectively.



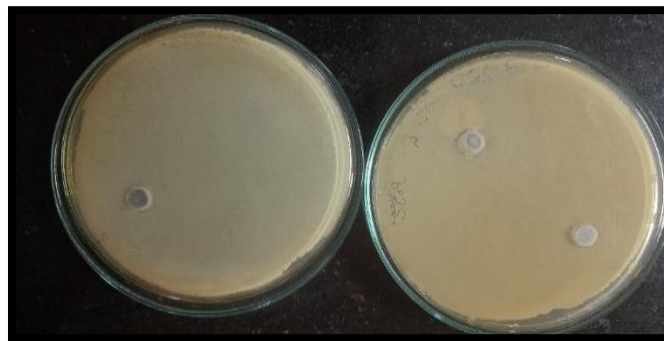
Figure 7: MR test (positive)



Figure 8: VP Test negative



Figure 9: Citrate Test Positive



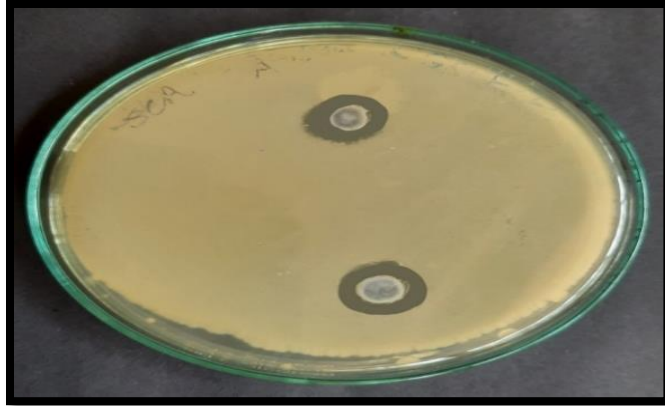


Figure 10: Antimicrobial activity control plates with no zone of clearance, and plates showing zone of inhibition in the cell free extract of *Bacillus Subtilis*.

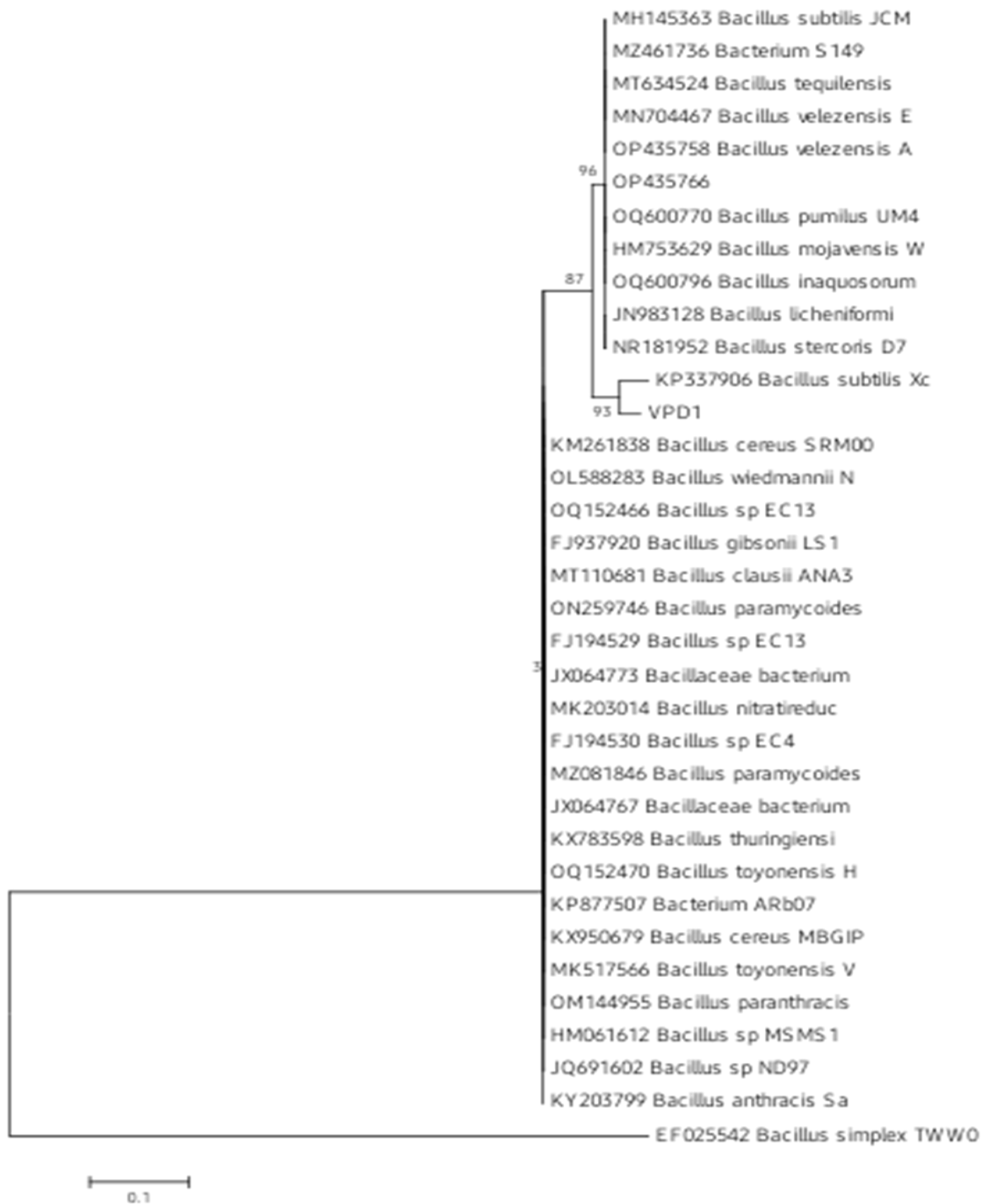


Figure 11 (a): Dendrogram showing evolutionary relationship and identification of the isolate as *Bacillus subtilis*.

>*Bacillus subtilis* VPD1

GTGCTATACATGCAAGTCGAGCGGACAGATGGGAGCTTGCTCCCTGATGTTAGCGGCGGACGGGTGAGTAACACGTGGG
TAACCTGCCTGTAAGACTGGGATAACTCCGGGAAACCGGGGCTAATACCGGATGGTTGTTTGAACCGCATGGTTCAAACA
TAAAAGGTGGCTTCGGCTACCACTTACAGATGGACCCGCGGCGCATTAGCTAGTTGGTGAGGTAACGGCTACCAAGGC
AACGATGCGTAGCCGACCTGAGAGGGTGATCGGCCACACTGGGACTGAGACACGGCCCAGACTCCTACGGGAGGCAGC
AGTAGGGAATCTCCGCAATGGACGAAAGTCTGACGGAGCAACGCCGCGTGAGTGATGAAGGTTTTCGGATCGTAAAGC
TCTGTTGTTAGGGAAGAACAAGTACCGTTTGAATAGGGCGGTACCTTGACGGTACCTAACAGAAAGCCACGGCTAACTA
CGTGCCAGCAGCCGCGGTAATACGTAGGTGGCAAGCGTTGTCCGGAATTATTGGGCGTAAAGGGCTCGCAGGCGGTTTC
TTAAGTCTGATGTGAAAGCCCCGGCTCAACCGGGGAGGGTCATTGGAACTGGGGAAGTTGAGTGCAGAAGAGGAGA
GTGGAATTCACGTGTAGCGGTGAAATGCGTAGAGATGTGGAGGAACACCAAGTGGCGAAGGCGACTCTCTGGTCTGTAA
CTGACGCTGAGGAGCGAAAGCGTGGGGAGCGAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAGTGCT
AAGTGTTAGGGGGTTTTCCGCCCTTAGTGCTGCAGCTAACGCATTAAGCACTCCGCCTGGGGAGTACGGTCGCAAGACTG
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AGGTCTTGACATCCTCTGACAATCCTAGAGATAGGACGTCCCTTCGGGGGCGAGGTGACAGGTGGTGCATGGTTGTCGT
CAGCTCGTGTCTGAGATGTTGGGTAAAGTCCCGCAACGAGCGCAACCCTTGATCTTAGTTGCCAGCATTAGTTGGGCA
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ATCGCAGTCTGCAACTCGACTGCGTGAAGCTGGAATCGCTAGTAATCGCGGATCAGCATGCCGCGGTGAATACGTTCCCG
GGCCTTGTACACACCGCCCGTCACACCACGAGAGTTTGTAAACCCGAAGTCGGTGAGGTAACCTTTTAGGAGCCAGCCG
CCGAAGGTGAC

Figure 11 (b): 16s RNA sequencing for the identification of the bacterial isolate.

Tables:

Table 1: Colony characteristics of a typical colony on nutrient agar after incubation at 37 °C for 24 hours.

Size	Shape	Colour	Margin	Elevation	Opacity	Consistency	Gram's Nature
1mm	circular	White	Entire	Flat	opaque	Butyrous	Gram Positive rods

Table 2: Summary of the results of biochemical tests

Biochemical Test	Results
Gram Staining	Gram positive rods
Starch Hydrolysis Test	Positive
Oxidase Test	Negative
Catalase Test	Positive
Methyl Red Test	Positive
Voges-Proskauer Test	Negative
Citrate Utilization Test	Positive
Sugar Fermentation Tests-	
Glucose	Positive
Sucrose	Positive
Dextrose	Positive

Table 3: Effect of carbon sources on the growth (measured as turbidity) of *B. subtilis*

Carbon Sources	Absorbance at 620 nm 5% sugar Concentration	Absorbance at 620 nm 10% Concentration
Sucrose	1.2981	0.7943
Fructose	1.2188	1.1243
Soluble Starch	1.5184	1.0625
Blank	0.6872	0.6872