



## **Cloning, sequencing and expression of the xylanase gene from *Bacillus pumilus* GH in *Escherichia coli***

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**Abstract :** The thermostable endo-1,4-beta-xylanase gene of *Bacillus pumilus* GH strain was isolated from chromosomal DNA using specific primers designed from *Bacillus pumilus* xylanase gene given in gene bank database then cloned into pET29a (+) vector and transformed into *E. coli* DH5 $\alpha$ . The positive clone was selected, sequenced and submitted to gene bank with the accession number KT757524.1. The open reading frame of the xylanase gene was 687 bp encoding a protein of 228 amino acids with a molecular mass of 23 kDa. The sequence of *Bacillus pumilus* GH xylanase gene showed 99 % similarity with other xylanase genes of different *Bacillus pumilus* strains, differ only in two nucleotide bases at positions 579 and 600. The recombinant plasmid was subcloned into the expression host *E.coli* BL21 (DE3) and successfully expressed. The total activity of xylanase was 9 U/ml, 52% (4.7U/ml) of the activity was extracellular and 48 % (4.3 U/ml) intracellular.

**Key words:** *Bacillus pumilus*; *E. coli*; xylanase; gene cloning and expression; sequence analysis.

