**Response to the reviewers**

**Response to Reviewer D**

**1.** The title has been revised as **“A highly inducible β-galactosidase from *Enterobacter* sp.”**

**2.** The introduction has been arranged as suggested “β-galactosidase can catalyze two different reactions in organisms, namely hydrolytic and transgalactosylation reactions. It can hydrolyze lactose, mainly being used in food technology for lactose hydrolysis in milk and milk by-products.6 It can also go through a process called transgalactosylation, taking part in the production of a variety of trans-galactosylation products or prebiotic galacto-oligosaccharides (GOS).”

**3.** The sentence has been rephrased as “More applications of β-galactosidases, such as the preventing lactose from being crystallized in the frozen and condensed milk products, lactose hydrolysis in whey can cause reduction of water whey pollution, and also it will increase the sweetening properties by hydrolysis products, glucose and galactose.12 “

**4.** The methodology for determination of kinetics parameters, Km and Vm has been extended as the substrate concentration range has been included and a graph presenting
these results are included in supporting material. These results
are also discussed in view of previously published data:

*“o*-NPG substrate concentrations used were as 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 1, 2, 4 mM in 0.1 M phosphate buffer at pH 8.0 at 35 °C for 10 min. “

*“V*max and *K*m for β-galactosidase enzyme from *Streptococcus thermophilus* were calculated as 2.8U/ml 3.05 mM, respectively (Princely et al, 2013). Chakraborti et al (2000) determined *K*mand *V*max values for purified β-galactosidase from *Bacillus* sp. MTCC 3088 for ONPG as 6.34 mM and 9351 IU/ml, respectively. Moreover, the results of the present study were in accordance with the study of Sumathy et al (2012), who measured the β-galactosidase activity from *Lactobacillu*s sp. at different concentration of the substrate ONPG, calculating the *V*max as 16x10-3(mol/ min/ mgprotein) and *K*m as 50x10-3 (moles/min).”

**5.** Table (Supplementary 2) has been excluded from the manuscript.

**6.**The discussion of lactose hydrolysis experiment (339-344) has been
rephrased mentioning with potential applications in view of presented results:

“The experiments of lactose hydrolysis were carried out using lactose under optimized conditions (pH 8.0 and 35oC). The results are presented in Figure 4. It was found that the time for lactose hydrolysis continues up to 10 h with the reaction catalyzed by purified β-galactosidase, indicating that there is a potential application of the enzyme to be used for lactose hydrolysis on whey and milk. Similarly, Ghatak et al. 10 reported hydrolysis of milk lactose using immobilized β-galactosidase from *Enterobacter cloacae* under optimized conditions (PH 9.0 and 50 oC) and found that about 46.34% lactose in milk was hydrolyzed at 8 h operation using a continuous packed bed reactor system. Moreover, we have previously used a novel yeast strain *Kluyveromyces marxianus* DIV13-247 which also hydrolysed lactose solution in whey and milk to a great extent 26. “

-a reference is deleted, while two new references, 40 and 41 are added.

**Response to Reviewer F**

**1.** My Mphil student (Bestoon; the first author) has actually tested the enzyme on lactose hydrolysis in milk, but it needed some optimisation and further work before he had to move to his country. However, lactose hydrolysis alone should give an idea about the enzyme activity and its use.

**2.** As described above, the introduction and discussion sections have been improved.

**3.** As the reviewer points out, the SDS concentration used in native PAGE is just enough to cause protein move only according to its molecular weight and this situation has been shown in Figure 3 and described in discussion section as;

“Analysis and characterization of the purified β-galactosidase from *Enterobacter* sp. 3TP2A were carried out by SDS-PAGE and Native- PAGE. The molecular weight analysis of the β-galactosidase showed a single band of protein, and its molecular mass was found to be approximately 60 kDa (Figure 3a). Native gradient PAGE (Figure 3b) also showed a single enzyme apparent at the same location. “

**4.** The methodology for determination of kinetics parameters, Km and Vm has been extended as the substrate concentration range has been included and a graph presenting
these results are included in supporting material. These results
are also discussed in view of previously published data: