the deterioration of all health components of students. It is necessary to conduct trainings that will teach undergraduates to cope with stress and study successfully, without doing any harm to their health.

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THE ACTIVITY OF RECOMBINANT *TAQ*POLYMERASE ENZYMES PURIFIED BY MEANS OF DIFFERENT FAST PROTEIN LIQUID CHROMATOGRAPHY METHODS

Topicality. The isolation of pure proteins is able to delve into the mechanistic aspects of protein function and design of diagnostic and therapeutic tests and agents. DNA polymerase from *Thermus aquaticus* (*taq*) has become a common reagent in molecular biology because of its thermo stable utility in downstream applications such as PCR and DNA sequencing. Cloning of *E. coli* bacterial expression vectors which produce recombinant *taq*DNA polymerase has facilitated the enzyme preparation. Proteins are purified in active form on the basis of such characteristics as solubility, size, charge and specific binding affinity. Typically, purification methods of *taq*DNA polymerase from bacterial cultures involve selective precipitation and chromatographic methods of FPLC.

The objectives. To use different chromatographic methods for the purification of *taq*DNA polymerase to achieve high activity; to compare the activity of *taq*polymerase purified and to recommend the best purification method.

Materials and methods. The present investigation was conducted to study the activity of purified *taq*polymerase preparations at the analytical level using ammonium sulfate precipitation and three different chromatographic purification methods of FPLC including ion exchange, size exclusion and hydrophobic interactions. After the chromatographic purifications the collected *taq*fractions were concentrated and finally the activity and purity of the obtained *taq*preparations were compared to the results of chromatographic purifications with commercial *taq*DNA polymerase.

Results and discussion. It has been shown that, hydrophobic interaction chromatographic purification was not the best purification method to purify *taq*DNA polymerase as no activity was detected. Furthermore, both anion exchange and size exclusion have demonstrated the same activity as in case of commercial *taq*, though the recovery of protein and purity were high in size exclusion.

Conclusions. Thus, among the three subjected chromatographic purification methods of FPLC, size exclusion chromatography was the best one for the purification of recombinant *taq*DNA polymerase to achieve high activity, purity and yield.