A number of $N$-substituted thymine and adenine derivatives, $2a, b$ and $3a, b$, were synthesized by the coupling reaction of 1-bromo-2,2-diethoxyethane with the corresponding base. The corresponding peptide nucleic acid (PNA) analogues, $N$-substituted ethylamino-3-hydroxypropanoate derivatives $5a, b$ and ethylamino-3-hydroxybutanoate derivatives $6a, b$, were synthesized from the corresponding 2-[3,4-dihydro-5-methyl-2,4-dioxopyrimidin-1(2H)-yl]-acetaldehyde ($3a$) and 2-[6-amino-4H-purin-9(5H)-yl]-acetaldehyde ($3b$), respectively. The synthesized compounds were tested for their antiviral activity against hepatitis B virus (HBV). The plaque reduction infectivity assay was used to determine the virus count reduction as a result of the treatment with the tested compounds.

Key words: Peptide Nucleic Acid Analogues, Adenine and Thymine Nucleobases, Anti-Hepatitis B Virus