The production and location of xylanolytic enzymes in alkaliphilic Bacillus sp. K-1, isolated from the wastewater treatment plant of pulp and paper industry, was studied. When grown in alkaline xylan medium, the bacteria produced xylanolytic enzymes such as xylanase, β-xylosidase, arabinofuranosidase and acetyl esterase. Two types of xylanases (23 and 45 kDa) were found to be extracellular but another type of xylanase (35 and/or 40 kDa) were detected in pellet-bound fraction that was cluted with 2% triethylamine from the residual xylan of the culture. The xylanases were different in molecular weight and xylan-binding ability. Arabinofuranosidase and β-xylosidase were found to be intracellular and extracellular. Acetyl esterase was found to be extracellular. The extracellular xylanolytic enzymes hydrolyzed insoluble xylan, lignocellulosic materials and xylans in kraft pulps effectively.