The extracellular form of cellulosome-type multienzyme complex of thermophilic \textit{Bacteroides} sp. strain P-1 which was isolated from the anaerobic digester, is described. Multienzyme complex was isolated from the culture supernatant by an adsorption-desorption affinity chromatography on microcrystalline cellulose. The isolated multienzyme complex was found to form a complex that exhibited a high molecular weight (estimated at more than 1400 kDa) and was quite stable, requiring strong denaturing condition for dissociation. Polyacrylamide gel electrophoresis in the presence of sodium dodecyl sulphate resolved multienzyme complex into at least 12 subunits with the molecular weight range of 49 to 209 kDa, respectively. The isolated multienzyme complex showed cellulose-binding ability, cellulases and xylanase activities and effected the hydrolysis of crystalline cellulose and lignocellulosic materials in the from of corncob, corn hull, rice straw, and sugarcane bagasse.