ABSTRACT  The fragile X syndrome is the most common cause of inherited mental retardation. Cytogenetic analysis showed that fragile X syndrome was associated with fragile site at the end of long arm chromosome X (Xq27.3). To express fragile site on X chromosome the cell culture media have to be deficient in folic acid or otherwise use folate inhibitor. The aim of this study was to screen and distinguish fragile site expression on mentally retarded person that cultured with folate depleted media and use of folate inhibitor. This study was a descriptive observational method. Twenty-seven samples with unexplained mental retardation were selected from Dharma Putra Special School Semin by limited physical examination to exclude Down syndrome, multiple malformation and deaf-mute. Blood from every sample was cultured in two different media namely TC 199 and MEM with thymidine. The result of all samples that were cultured in TC 199 and MEM with thymidine showed fragile site on Xq27.3 for 11 samples with average frequency 16.82% and 1 sample with average frequency 5% respectively. The other major finding of this study was that fragile X syndrome was the main cause of mental retardation in this region.