The purpose of this study is to establish a detection method on genetically modified soybean (GMS) resistant to glyphosate using PCR method. Reference materials of Roundup Ready soybean and samples from Guangdong Zhongshan Supervision Testing Institute of Quality & Metrology of China were analyzed in this study. The foreign gene in commercial GMS resistant to glyphosate is mainly CP4-EPSPS, which is promoted by CaMV35S promoter and terminated by NOS terminator. The primers were designed to amplify parts of the Lection and CP4-EPSPS according to the Roundup Ready soybean genome. The two different methods (CTAB method and modified SDS method) were used to extract DNA from soybean powder and compared the efficiency of extraction. The amplification fragments were purified from the 2% agarose gel then sequenced. The results showed that the modified SDS method developed in this study was more useful than CTAB method for extraction DNA from soybean powder. The DNA template could be detected by PCR. The homology analysis proved that the amplification fragments were parts of Lection and CP4 EPSPS. The PCR method for detection GMS resistant to glyphosate was constituted previously.