ABSTRACT OF DISCLOSURE

An object of the present invention is to solve a problem of separation and recovery of catalysts present in an alkali metal catalytic method currently often used, a problem of excess consumption of a catalyst by a free fatty acid in a raw material, and other problems, and to solve a problem of the presence of a large excess amount of alcohol in a conventional supercritical methanol method, and to provide a method for producing a fatty acid alkyl ester composition in a reaction system containing water and free fatty acid present. The present invention has attained the above-mentioned object by provided a method for producing a fatty acid alkyl ester composition using fats and oils containing a fatty acid glyceride and/or fatty acid, wherein alcohol and/or water is allowed to co-exist with the above-mentioned fats and oils and the reaction is conducted under conditions of a temperature of 100°C to 370°C and a pressure of 1 to 100 MPa.