In order to promote the consumption of rice in Taiwan, the extrudates made by an indigenous single-screw extruder with the Taichung Sen 17 (an *Indica* rice) was studied for its physicochemical and prebiotic properties. Feed moisture (15, 20, 25%) and screw speed (200, 250, 300 rpm) were the process variables studied. Based on the obtained results, extrudates produced at the feed moisture of 25%, and screw speed of 200 rpm had the highest resistant starch content of 8.53%. The highest white index of 59.4 was found for extrudates produced at the feed moisture of 15%, and screw speed of 200 rpm. The highest degree of gelatinization of 98.32% was found for extrudates produced by the feed moisture of 25%, and screw speed of 250 rpm. As to the results of prebiotic tests, the *Lactobacillus acidophilus* BCRC 10695 was incubated in mediums contained 4% of rice extrudates and 3%, 4%, 5%, 6%, 7% commercial resistant starches for 36 hours. The medium contained 4% of rice extrudate was found the best.