Studies on the Optimal Utilization of Peanut Kernels with Various Maturity

王長瑞、顏裕鴻 ; 邱義源

E-mail: 8701403@mail.dyu.edu.tw

ABSTRACT

Agronomy characteristics and chemical compositions of peanut kernels as affected by harvest date, growing season, location and peanut cultivar were investigated. In addition, an apparch to use a hydraulic press for partially defatting and to prepare low-fat peanut kernels was pursued. Four peanut cultivars including TNG6,TN9,TN11,and TN12 of 1996 fall and 1997 spring crops were planted at Puze and Peigang. Peanut pods were harvested at 35-40(R6), 50-60(R7),and 65-70(R8)days after flowering. The dried in-shell peanuts were hand shelled, sorted and size graded(U.S.No.1, 1.9*0.6 cm slots)into U.S. No.1 and U.S.No.2 sublots.The weight percentage of No.1 kernels increased with increase of harvest date for both crops and all cultivars. Among cultivars, the pencentages of TNG6 and TN12 were higher than the other cultivars. Percentage of kernel germination of fall crops was not different significantly as affected by harvest date. In camparision, germination percentage of R8 kernels was significantly higher than R6 kernels for spring crops. For both crops percentages of kernel germination were higher for No.1 kernels than were No.2 kernels. Among cultivars, kernel germination percentage of TNG6 was higher than the other cultivars. Between two crops, kernel germination rate was comparatively higher in fall crops than in spring crops. In compositional analysis, moisture,total free amino nitrogen and sucrose contents of No.1 and No.2 kernels decreased with increase of harvest date. In comparision, the contents in the former were higher lower than in the latter. Among cultivars, the moisture, total free amino nitrogen, and sucrose contents of TN11 were higher than those of other cultivars. Sucrose content was higher in fall crops than in spring crops at puze while was higher in spring crops than in fall crops at Peigang. On the aspect of production of partially defatted kernel products, peanut kernels of mixed cultivars and TN12 were roasted at 200 °C for 6.5 and 6.0 min, respectively. After cooling to room temperature, the kernels were skinned and subjected to partially defatting using a hydraulic press. The operation conditions including 60, 100, 140, 180, 220, and 260 kg/cm^2 for 1 min, at 100 kg/cm^2 for 0.25, 0.5 1, 3, 5, 7, and at 100 kg/cm^2 with temperature control at 25, 45, and 70 °C for 9 min were conducted. respectively, kernel destruction by pressing of the skinned kernels were visually examined. Defatting percentage increased with increase of pressure and time. Among the operation temperatures, the highest and lowest defatting percentages were obtained at 45 °C and 70 °C, respectively. The lowest pressing destruction of the kernels was obtained at pressing operated at 45 °C and 100 kg/cm^2 for 1 min. The defatting percentage for the two kernels were 62.4 and 63.1% and percentages of obtained sound kernels were 84.9 and 79.1%, respectively. When the partially defatted peanut kernels were reconstituted in hot water held at 50, 70, and 90 °C for 0.5, 1, 2, 3, 4, and 5 min, respectively. A satisfactry result of kernel reconstitution was obtained at 90 °C for 3-5 min. After reconstitution, the partially defatted and reconstituted peanut kernels were roasted at 200 °C for 17, 19, 21, 23, and 25 min and subjected to sensory evaluation. Kernels after roasting at 200 °C for 19-21 min were considerably acceptable. When the partially defatted peanut kernels were soaked with a solution containing salt and seasoning for reconstitution and subjected to roasting, the flavor and crisp texture of the products were accepted more than satisfaction.

Keywords : 花生仁 ; 脫脂 ; 成熟度

Table of Contents