

Title of the project: Effect of various processing treatments on chemical compositions of newly developed cultivars of green gram [*Vigna radiata* (L.) Wilczek)] and black gram [*Vigna mungo* (L.) Hepper] of Assam

ABSTRACT

Two newly developed cultivars each from green gram [*Vigna radiata* (L.) Wilczek)] viz., SGC-16, SGC-20 and black gram [*Vigna mungo* (L.) Hepper] viz., SBC-40, SBC-47 were collected from Regional Agricultural Research Station, Assam Agricultural University, Nagaon. The effects of various processing treatments viz., soaking, pressure cooking and germination on the seeds were evaluated. Pressure cooking resulted in highest increase in moisture content in green gram in comparison to black gram cultivars. The highest protein content was observed in germinated seeds in both green gram (24.04% to 25.35%) and black gram (28.57 to 28.82%) cultivars. In both the pulses, the level of starch content decreased significantly in response to various treatments in comparison to the control. Comparison of various processing treatments evinced that starch content was found to be lowest in germination in SGC-20(32.52%) and SBC-40(37.92%) followed by soaking in SGC-16 (34.80%) and SBC-47(38.18%) as compared to control. Vitamin C content was recorded highest during germination in SBC-47(5.15 mg/100g) compared to other treatments. Amongst the various processing treatments, pressure cooking was found to be most effective in retention of the nutrients in cultivars of both the pulses. Increased levels of ash, crude fibre, reducing sugar and protein content were observed in black gram, whereas moisture, fat and starch contents were found in higher amounts in green gram. Non-reducing sugar and vitamin C content of both the varieties were found to be almost similar. The present study revealed higher nutrient content in black gram than green gram. All the antinutritional factors were also found to be higher in black gram than green gram. Significant reductions in the antinutritional factors were observed due to the various processing treatments. Trypsin inhibitor activity (TIA) was destroyed to greater extent in comparison to other antinutrients under these processing methods. Lowest TIA level (591.95TIU/100g to 596.63TIU/100g) was recorded in pressure cooking of seeds in green gram cultivars. Both pressure cooking and germination was found to be effective in reducing TIA in black gram cultivars. Phytic acid content was drastically reduced both in pressure cooking and germination, while, germination was found to be most effective in reducing tannin content in cultivars of both the pulses.