

Title Development of a sensitive picrate method to determine total cyanide and acetone cyanohydrin contents of gari from cassava

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Abstract

The sensitivity of the normal picrate method for determination of total cyanide in cassava was increased tenfold using a small 1 cm² picrate paper, eluted using 0.5 mL instead of 5 mL of water as in the normal method. The absorbance was measured in a 2 mm cuvette in the spectrophotometer. The sensitive method was calibrated against the normal picrate method. The total cyanide content in mg HCN equivalents/kg sample = ppm, is calculated from the absorbance (A) by the equation $\text{ppm} = A \times 45.7$ which is applicable from 0.1 to 50 ppm. A new method to determine acetone cyanohydrin was developed based on irreversible denaturation of linamarase in 0.1 M HCl at 30 °C for 1 h. Five gari samples from Mozambique gave a mean total cyanide content of 12 ppm (range 6-15 ppm) and mean acetone cyanohydrin content of 11 ppm (range 5-14 ppm). Acetone cyanohydrin liberates cyanide quantitatively in the human intestine.