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Lycopene a panacea for sustainable man power for agricultural production in Nigeria: Determination of lycopene from water melon (*Citrullus lanatus*)

S I Okonkwo

Anambra State University, Nigeria

Manpower is one of the most important factors that can enhance and sustain agricultural production in Nigeria. The age bracket of 40 years and above is the group that is engaged in farming in Nigeria. These age groups are prone to diseases such as high blood pressure, cancer, cardiovascular diseases and this is why they die prematurely since their life expectancy has declined. Lycopene found in watermelon which can be used for its medicinal value was extracted, analyzed and quantified. Watermelon was peeled and the reddish flesh ground and oven-dried to make a paste. Lycopene was extracted using ethyl acetate. The crude product was obtained by simple distillation. The lycopene crystals were obtained through crystallization of crude product by adding a mixture of benzene and boiling methanol. Further purification was done using thin-layer chromatography using silica gel as adsorbent, followed by recrystallization using a mixture of benzene and boiling methanol. Identification was done using UV spectroscopy and the primary chemical test for lycopene using sulfuric acid which changes the colour to indigo blue. Also, few crystals were dissolved in acetone, after successive addition of 5% solution of sodium nitrate and 1M sulfuric acid, the colour disappears. The quantity of extracted lycopene was weighed and found to be 1.62mg per 50g watermelon paste. Lycopene can be produced in commercial quantity which can be consumed by this age group as supplement. This will aid to reduce high death rate and enhance their life span which is one of the factors that can increase agricultural productivity.

sylocs70@yahoo.com