Formulation of Yam Starch (*Pachyrhizus erorus* (L.) Urb.) Spray Gel and Determination of Sun Protective Factor (SPF) Value *In Vitro*

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ABSTRACT

Tuber yam (*Pachyrhizus erorus* (L.) Urb.) have been traditionally used in Indonesia to protect the skin from the sun. The yeast tube contains 86-90% water, vitamin c, flavonoids, saponins, and phenolic compounds which are natural sunscreens used to prevent dull and damaged skin from free radicals. Besides being used as sunscreen, yam tubers are also commonly used as lightening and skin whitening, preventing hyperpigmentation, disguising acne scars, and reducing wrinkles on the face. This studied aims to formulate yam starch into a spray gel preparation and to know the physical stability and SPF value of spray gel based on yam starch. The stages of this research are sample processing, preparation of spray gel based on carbopol 940, determination of physical stability of the preparation covering organoleptic examination, homogeneity, and stability, pH measurement and spreading power test, and SPF in vitro test using Spectrophotometer UV-Vis. Based on the results of the study, the physical properties of the yam starch spray gel met the requirements of the homogeneous test, the pH value ranged from 6.3-7.15, the sticky dispersion was more than 10 seconds, the viscosity value ranged from 527.31-602.05, and the physical temperature was stable. Yam starch spray gel preparations have minimal protection sunscreen activity on the concentration of yam starch 1 g, 3 g, and 5 g with SPF values of 2.13, 2.62, and 4.62.

Keywords: yam starch, spray gel, carbopol 940, sunscreen, sun protective factor test