

ABSTRAK

Vania Christella Wenard (01034190030)

STABILISASI PIGMEN ANTOSIANIN EKSTRAK ROSELA DENGAN KOPIGMENTASI DENGAN ASAM GALAT DAN ASAM TANAT

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(xv + 73 halaman; 29 gambar; 8 tabel; 13 lampiran)

Pigmen antosianin berpotensi untuk dikembangkan sebagai pewarna alami. Salah satu sumber antosianin adalah kelopak bunga rosela. Pemanfaatan kelopak bunga rosela sebagai pewarna masih terbatas karena pigmen antosianin yang kurang stabil sehingga perlu distabilkan dengan metode kopigmentasi. Tujuan dari penelitian ini adalah melakukan stabilisasi pigmen antosianin menggunakan metode kopigmentasi dengan senyawa fenolat sebagai kopigmen. Kopigmen berupa asam galat dan asam tanat ditambahkan dengan rasio pigmen-kopigmen 1:50 dan 1:100. Perlakuan terpilih adalah asam tanat 1:100 yang dapat meningkatkan intensitas warna dengan nilai absorbansi sebesar $0,890 \pm 0,040$, memberikan efek batokromik dan hiperkromik paling tinggi serta memberikan kadar antosianin sebesar $13,41 \pm 0,34$ mg/L. Uji kromatografi lapis tipis menunjukkan adanya ikatan antara senyawa pigmen dan kopigmen. Ekstrak rosela yang telah dikopigmentasi dengan asam tanat 1:100 diuji stabilitasnya pada suhu 25°C , 40°C , 55°C , 70°C , dan 85°C serta pH 2, 4, 6, 8, dan 10. Hasil penelitian ini menunjukkan bahwa asam tanat mampu menstabilkan pigmen antosianin hingga mencapai suhu 70°C berdasarkan kadar antosianin ($12,30 \pm 0,41$ mg/L) dan intensitas warna ($0,792 \pm 0,052$). Pada kondisi berbagai pH, asam tanat mampu menstabilkan pigmen antosianin hingga pH 4 berdasarkan kadar antosianin ($6,78 \pm 0,21$ mg/L) dan intensitas warna ($0,310 \pm 0,015$).

Kata Kunci : rosela, pigmen antosianin, kopigmentasi, asam galat, asam tanat

Referensi : 83 (2005-2022)

ABSTRACT

Vania Christella Wenard (01034190030)

STABILIZATION OF ANTHOCYANIN PIGMENT IN ROSELLE EXTRACT BY COPIGMENTATION USING GALLIC ACID AND TANNIC ACID

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Anthocyanins have the potential to be developed as natural colorants. One of many sources of anthocyanin pigments is roselle calyces. However, the utilization of roselle calyces as a colorant is limited because anthocyanins have low stability, so it needs to be stabilized by copigmentation. The purpose of this study was to stabilize anthocyanin pigments by copigmentation method using phenolic compounds as copigment. Copigments, such as gallic acid and tannic acid, were added with pigment-copigment ratios of 1:50 and 1:100. The selected treatment was tannic acid 1:100 which could increase the color intensity with an absorbance value of $0,890 \pm 0,040$, gave the highest bathochromic and hyperchromic effects with anthocyanin content of $13,41 \pm 0,34$ mg/L. Thin layer chromatography test showed the presence of bonds between pigment and copigment compounds. Roselle extract which had been copigmented using tannic acid 1:100 was tested for stability at temperatures of 25°C, 40°C, 55°C, 70°C, 85°C and pH 2, 4, 6, 8, 10. The results of this study showed that tannic acid was able to stabilize the anthocyanin pigment until it reaches a temperature of 70°C based on anthocyanin content ($12,30 \pm 0,41$ mg/L) and color intensity ($0,792 \pm 0,052$). At various pH conditions, tannic acid was able to stabilize anthocyanin pigments up to pH 4, based on anthocyanin content ($6,78 \pm 0,21$ mg/L) and color intensity ($0,310 \pm 0,015$).

Keywords : roselle, anthocyanin pigments, copigmentation, gallic acid, tannic acid

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