**Research Title (TH SarabunPSK 18)**

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**Abstract**

**Introduction:** This study aimed to investigate the effect of the ethanolic extracts of *Eclipta prostrate* L.(EP), *Zingiber officinale*  L.(ZO), *Lawsonia inermis* L.(LI), *Rhinacanthus nasutus* L.(RN) on melanin synthesis.**Materials and methods:** These extracts were determind for total phenolic content**,**antioxidant activity by Radical Scavenging Assay (DPPH)andFerric Reducing Ability of Plasma (FRAP)**,** mushroom tyrosinase activity, cell viability by MTT assay and melanin synthesis by melanin content assay in B16F10 cells. **Results:** The results showed that plant extracts had total phenolic content at 68.86±5.61 - 170.21±14.69 mg (mg tannic acid equivalent/g), Antioxidant by DPPH plant extracts had IC50 at 9.93±2.38 -  96.31±6.51 µg/ml, Antioxidant by FRAP plant extracts had FRAP value at 72.45±9.4- 733.13±154.62 mg/g, tyrosinase activity of ZO and EP extracts at a concentration of 150 µg/ml significantly increased mushroom tyrosinase activity to 144.65±2.68 % and 129.21±5.36 %, respectively (p-value < 0.05). LI and RN at  concentration at 0.5-150 µg/mlhad no increased mushroom tyrosinase activity**.**All plant extracts at concentrations of 31.25-250 µg/ml had no cytotoxicity to B16F10 cells at 48 hr incubations.Effect on melanin synthesisshowedEP, ZO, LI and RNhad maximumeffect on melanin synthesis to 125.62±1.26%, 117.05±10.47%**,** 129.41±8.17% and288.97±14.67%, respectively*.* **Conclusion:** These four plants increased melanin synthesis in melanocytes and may be used as hair treatment and decrease gray-hair**.**

**Keywords:** Keyword1, Keyword2*,*Keyword3*,*Keyword4*,*Keyword5