

## ABSTRAK

### UJI AKTIVITAS SITOTOKSIK FRAKSI POLAR BUAH RANTI HITAM (*Solanum nigrum* L.) HASIL FERMENTASI KOMBUCHA TERHADAP LINI SEL KANKER PAYUDARA MDA-MB 231

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**Latar Belakang:** Pengobatan kanker diketahui membutuhkan biaya yang relatif mahal dan menimbulkan efek samping merugikan. Oleh karena itu diperlukan upaya pengobatan alternatif, antara lain dengan menggunakan obat bahan alam. Salah satu tanaman yang berpotensi antikanker adalah buah ranti hitam (*Solanum nigrum* L.). Kombinasi fermentasi kombucha dengan beberapa tanaman obat diketahui dapat meningkatkan aktivitas antioksidan dan antibakteri. **Tujuan:** Mengetahui aktivitas sitotoksik dari hasil fermentasi fraksi polar buah ranti hitam (*Solanum nigrum* L.) terhadap lini sel kanker payudara MDA-MB 231. **Metode:** Pada penelitian ini dilakukan fermentasi kombucha dari fraksi polar buah ranti hitam. Uji aktivitas sitotoksik dilakukan menggunakan metode MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide). Penetapan kadar alkaloid total, analisis pH, total asam, dan total fenol dilakukan terhadap fraksi polar sebelum dan setelah fermentasi. **Hasil:** Dari uji metode MTT diperoleh nilai  $IC_{50}$  fraksi polar buah ranti hitam sebelum dan sesudah fermentasi dengan kombucha sebesar 407,02 ppm dan 939,53 ppm. **Kesimpulan:** Aktivitas sitotoksik fraksi polar buah ranti hitam sebelum dan setelah fermentasi termasuk kategori toksik lemah dan tidak toksik dengan nilai  $IC_{50}$  sebesar 407,02 ppm dan 939,53 ppm.

**Kata Kunci:** Aktivitas sitotoksik, buah ranti hitam, kombucha, sel kanker payudara MDA-MB 231, *Solanum nigrum* L., uji MTT

**ABSTRACT**

**CITOTOXY ACTIVITY ASSAY OF POLAR FRACTION OF  
BLACKNIGHT SHADE (*Solanum nigrum* L.) FRUITS  
FERMENTED BY KOMBUCHA AGAINST BREAST  
CANCER CELL LINE MDA-MB 231**

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**Background:** It has been known that cancer treatment requires expensive costs and causes adverse side effects. Therefore, an alternative treatment based on natural product is quite essential. One of the plants that has potential cytotoxic activity is blacknight shade (*Solanum nigrum* L.) fruits. Combination of kombucha fermentation with several medicinal plants has been reported to increase antioxidant and antibacterial activity. **Objective:** To determine cytotoxic activity of polar fraction of blacknight shade (*Solanum nigrum* L.) fruits fermented by kombucha against breast cancer cell line MDA-MB 231. **Methods:** In this study kombucha fermentation from polar fraction of blacknight shade fruits was carried out. Cytotoxic activity assay performed by using MTT method (3-(4,5-dimethyl-thiazol-2-yl) -2,5- diphenyltetrazolium bromide). Determination of total alkaloid levels, analysis of pH, total acid, and total phenol were measured on the polar fraction before and after fermentation. **Results:** From the MTT method assay,  $IC_{50}$  values of polar fractions of blacknight shade fruits before and after fermentation with kombucha were 407,02 ppm and 939,53 ppm respectively. **Conclusion:** Cytotoxic activity of the polar fraction of blacknight shade fruits before and after fermentation was categorized as weak toxic and non-toxic respectively.

**Keywords:** blacknight shade fruits, breast cancer cell line MDA-MB 231, cytotoxic activity, MTT method, *Solanum nigrum* L.