

## INTISARI

Daun pepaya memiliki potensi sebagai antimalaria, namun menimbulkan rasa pahit sehingga pengobatan menjadi kurang efisien jika diberikan kepada anak-anak. Tablet kunyah dapat menjadi solusi bagi anak-anak yang tidak menyukai rasa pahit. Penelitian ini bertujuan untuk memperoleh formulasi optimum tablet kunyah ekstrak daun pepaya dengan variasi bahan pemanis xilitol dan aspartam serta mengetahui stabilitas tablet kunyah ekstrak daun pepaya.

Optimasi formula tablet kunyah ekstrak daun pepaya menggunakan metode *Simplex Lattice Design*. Tablet kunyah dibuat dengan metode granulasi basah. Evaluasi dilakukan terhadap granul dan tablet kunyah yang meliputi kecepatan alir, sudut diam, indeks pengetapan, keseragaman bobot, kekerasan, kerapuhan, tanggap rasa, dan kadar alkaloid total. Hasil evaluasi dari granul dan tablet kunyah merupakan parameter untuk mendapatkan formula optimum. Formula optimum yang diperoleh diuji stabilitas selama satu bulan dengan kondisi suhu  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$  dan  $70\% \text{RH} \pm 5\% \text{RH}$  dalam *climatic chamber*. Uji stabilitas pada tablet meliputi uji keseragaman bobot, kekerasan, kerapuhan, dan kadar zat aktif tablet.

Hasil penelitian menunjukkan bahwa penggunaan xilitol meningkatkan sudut diam, indeks pengetapan, kekerasan, tanggap rasa, dan menurunkan kerapuhan, sedangkan pada penambahan aspartam meningkatkan sudut diam, meningkatkan kerapuhan, menurunkan indeks pengetapan, kekerasan dan tanggap rasa. Interaksi antara xilitol dan aspartam menurunkan kerapuhan dan meningkatkan tanggap rasa. Variasi keduanya tidak mempengaruhi kecepatan alir, keseragaman bobot dan kadar alkaloid total. Formula optimum tablet kunyah yang diperoleh memiliki komposisi xilitol 316 mg dan aspartam 8 mg. Uji stabilitas pada respon keseragaman bobot, kekerasan, kerapuhan, dan kadar zat aktif tablet dengan penyimpanan selama 4 minggu pada suhu  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$  dan  $70\% \text{RH} \pm 5\% \text{RH}$  tidak mengalami perubahan yang signifikan, yang menunjukkan bahwa tablet kunyah stabil.

Kata kunci : Antimalaria, *Carica papaya*, xilitol-aspartam, *Simplex Lattice Design*

## ABSTRACT

Papaya leaves have potential as an anti-malarial, but it caused a bitter taste so that the treatment became less efficient if given to children. Chewable tablets could be a solution for children who did not like the bitter taste. This study aimed to obtain the optimum formulation of chewable tablets of papaya leaf extract with variations of xylitol and aspartame sweetener ingredients and to determine the stability of it.

The optimization of the chewable tablets of papaya leaf extract used the *Simplex Lattice Design* method. It was made using the wet granulation method. The evaluation is carried out on granules and chewable tablets includes the flow rate, angle of repose, the tapping index, uniformity of weight, hardness, friability, taste responsiveness, and total alkaloid content. The results of the evaluation of granules and chewable tablets are parameters to get the optimum formula. The optimum formula obtained was tested for a month stability with a temperature of  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and  $70\% \text{RH} \pm 5\% \text{RH}$  in the climatic chamber. Stability tests on it include weight uniformity, tablet hardness, friability, and contents of active substances.

The results showed that the use of xylitol had an influence increases on the angle of repose, the tapping index, hardness, taste responsiveness, and decrease friability while adding aspartame increases on the angle of repose, friability, decrease the tapping index, hardness, and taste responsiveness. Xylitol and aspartame interactions decrease friability and increase taste responsiveness. Both variations don't affect the flow rate, uniformity of weight, and contents of active substances. It's the optimum formula which composition of xylitol 316 mg and aspartame 8 mg. Stability test on weight uniformity response, hardness, friability, and total alkaloid content with storage for four weeks at  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and  $70\% \text{RH} \pm 5\% \text{RH}$  did not experience significant changes, which showed that chewable were stable.

Keywords : Antimalarial, *Carica papaya*, xylitol-aspartame, Simplex Lattice Design