

Research Title: Effects of Planting and Harvesting Dates on Growth, Yield and Active Ingredients Levels in *Andrographis paniculata*

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ABSTRACT

The aims of this study were to investigate the influence of planting and harvesting dates on growth, yield and active ingredients levels in kalmegh (*Andrographis paniculata*). The two experiments were conducted at the experimental field of Faculty of Agricultural Technology, King, Mongkut's Institute of Technology Ladkrabang, Bangkok, during, March to November, 2016.

The first objectives of this study were to examine the effects of different planting dates on growth and yield of kalmegh. The field experiment was conducted during, March to November, 2016 to assess to the performance of different local kalmegh cultivars under different planting dates. Three local kalmegh cultivars (Prachinburi, Nakhon Prathom and Pitsanulok 5-4) were sown on five different dates (1st of March, April, May, June and July) in a randomized complete block design with split plot arrangement with three replications. The results were showed that there were no interaction between local kalmegh cultivars and planting dates. The best Prachinburi local cultivars was the highest for plant growth and dry matter yield followed by Nakhon Prathom and Pitsanulok 5-4, respectively. The planting dates shown significant effect on growth and yield of kalmegh that decreased with early in planting dates and the highest values were obtained when cultivars planted on 1st June, 2016. This indicated that local cultivar Prachinburi can be successfully planted at 1st June and early planting should be avoided.

This second experiment was undertaken during June to November 2016, to investigate the effect of harvesting times on growth, yield and quality of kalmegh. The treatments were laid out in a split plot design, with three local kalmegh cultivars (Pitsanulok 5-4, Prachinburi and Nakhon Prathom cultivars) as the main plots and four harvesting times (harvesting at 120, 135, 150 and 170 days after planting (DAP)) as sub plots with three replications. The results were disclosed that there were no interaction between kalmegh cultivar and harvesting dates. For three local kalmegh cultivars, stem and leaf dry weight and total dry weight of Prachinburi cultivar were the the highest and followed by Nakhon Prathom and Pitsanulok 5-4 cultivars, respectively. Leaf dry weight and seed dry weight yield of Prachinburi cultivar were the highest. Harvesting times directly affected on growth and yield of kalmegh. The highest leaf dry weight yield (13.59 g plant⁻¹) and andrographolide content (2.54%) were recorded at harvesting times of 135 DAP. However, from the finding of this study, it is recommended that harvesting times at 135 DAP in Prachinburi local kalmegh cultivar should be adopted.

Keywords : Planting dates, Harvesting dates, Yield, *Andrographis paniculata*