Isolation of Iridoid Glycoside from *Fraxinus griffithii* Clarke Leaves

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Abstract. Development of new and has relatively less side-effect anti-seizure is important for pharmacist. To answer this issue, research to isolate iridoide glycoside from ethanol extract of the cortex and leaves of *Fraxinus griffithii* Clarke (tiken) has been conducted. Pharmacological screening test showed that those extract have anti-seizure activity on mice. It was conducted with electroshock method. Quantitative analysis with Trim-Hill reagent showed that the concentration of total iridoid of tiken leaves is higher than its cortex, 2.12% and 0.55% AE (Aucubin Equivalent), respectively. Isolation of iridoid glycosides from tiken cortex and leaves was done on an open column using silica gel as stationary phase and CHCL3-Methanol (47:3) as mobile phase. Identification of isolate from cortex (isolate X) and leaves (isolate Z) was done with three different TLC systems and used anisaldehid-H2SO4 (vanillin-H2SO4) as spray reagent. Each isolate showed a red-brown and red-purple spot. Spectrum of isolate X in methanol showed a maximum wavelength at 277.8 and 223.4 nm, whereas isolate Z at 278 and 223 nm.

Keywords: iridoid glycoside, *Fraxinus griffithii*, anti-seizure

INTRODUCTION

Fraxinus griffithii Clarke ("Tiken" or "orang-aring") is a plant that grows wild on the slopes of the mountains, like in the Besuki (Probolinggo) and Lumajang (Sutarjadi, 1980; Ali, 1988). In East Java, this plant has become famous again related with the circulation of tiken extract as adulterant for opium in 1961-1969 (Ali, 1988).

Various pharmacological studies have been conducted to investigate the efficacy of tiken extract. Tiken leaf extract has sedative and analgesic effects in mice, as well as reduce the blood pressure in dog (Ahaditomo, 1972; Ahaditomo et al., 1975). It was reported that the tiken bark extract may extend the mice sleeping time due to barbiturate (Ali, 1988). According to Ahaditomo et al. (1975), tiken leaf extract may improve the heart tone and lowering the heart rate in frog. Tiken also thought to have cardiotonic properties (Sutarjadi and Zaini, 1973; Sutarjadi, 1980; Ali, 1988). Tiken bark extract has CNS depressant effects, i.e.: mild sedation, does not cause paralysis of muscle, and does not cause sleep when tested on mice (Basori and Purwaningsih, 2004). Recent study states that tiken extracts have anti-seizure effects in mice (Purwaningsih, 2005).

Tiken bark contains a variety of compounds including ligustrosid glucoside, and glucoside of siringin and sinapaldehid. It is expected that sedation effects of tiken bark extract caused by ligustrosid glucoside (Sutarjadi, 1980). Part of tiken which has been widely researched is the bark. However, there are many things to be considered in the development of plant-based drugs (fitoterapi). One of them is the raw material should be easily obtained and processed (Depkes RI, 1985). Leaves are an abundant part of this plant, so it is important to study how its potency as an anti-seizure.

Anti-seizure activity of ethanol extract from tiken leaves will be conducted in this study. The comparative study of total iridoid concentration between leaves and stem bark extracts of tiken also will be conducted in this experiment. In order to develop anti-seizure compounds, iridoid glycoside compounds will be isolated from extracts of tiken leaf and stem bark.

METHODS

Plant materials, chemicals and Equipment

The plant material is leaves and stem barks of *Fraxinus griffithii* Clarke, obtained from the Pancur Angkrek Garden (PTPN XII). They were identified by the Center of Information & Development of Traditional Medicines (PIPOT), Faculty of Pharmacy, UBAYA. Plant materials were dried