



## CHAPTER I

### INTRODUCTION

Piper ribesoides Wall. is the plant in Piper genus and Piperaceae family. Piper ribesoides Wall. is a climber. Leaves are alternate opposite or whorled. Flowers are minute(1-2 exual), 2-6 stamens and 1 or more ovules. Fruits are small. Seeds are globose ovoid or oblong. In Thailand it has been known as **Ta khaan phlu**, Ta khaan lek, Ta khaan yuak(Na khon Ratchasima)<sup>1-2</sup>.

### RESEARCH IN CHEMISTRY ON THE PLANTS IN PIPER GENUS

The studies on Piper genus were summarized in Table 1

Table 1 Summary of research in Chemistry of Piper genus

Plants	Plant parts	Substances
<u>Piper attenuatum</u> <sup>3</sup>	root, stem and leave	Piperine(1), Piperlonguminine(6), N-isobutylde ca-trans-2-trans-4-dienamide(9), $\beta$ -sitosterol(17)
<u>P. peepuloids</u> <sup>4-5</sup>	leave	2-methyl-4,5-methylenelenedioxy cinnamonyl piperidine(2)
<u>P. chaba</u> <sup>6</sup>	stem	piplartine(3), free amino acids, monosaccharides (5E)piperolide(15), piperidene derivative(31-32)

Table 1 continue

<i>P. longum</i> <sup>7</sup>	root	piperlongmine(4), piperlongguminine(6), 10-amino-4-hydroxy-3-methoxyphenanthrene-1-carboxylic acid(piperolactam A)(40), 10-amino-4-hydroxy-2,3-dimethoxyphenanthrene-1-carboxylic acid lactam (piperolactam B)(41), 2-hydroxy-1-methoxy-6-methyl-4H-dibenzo(de,g)quinoline-4,5(6H)-dione (piperadione)(42)
<i>P. trichostachyon</i> <sup>8</sup>	stem	tricholein(5), 2-methoxy-4,5-methylenedioxy propiophenone(16)
<i>P. nigrum</i> <sup>9</sup>	fruit,stem	piperside(21), dihydropiperside(22), N-isobutyl-11-(3,4-methylenedioxy phenyl)-2E,4E,10E-undeca trienoic amide(7)
<i>P. sylvaticum</i> <sup>10-12</sup>	stem,seed	epieudesmin-type lignan sylvatesmin(18), alkaminde (8), 3',5-dihydroxy-4',7-dimethoxy flavone(19), N-isobutyl-4,5-dihydroxy-2E-decenamide(20), $\beta$ -sitosterol(17)
<i>P. aurantiacum</i> <sup>13</sup>	seed	auranamide(10), furanoid(23-28)
<i>P. ovatum</i> <sup>13</sup>	stem	N-isobutyl-6-(p-methoxy phenyl) sorbamide(11)
<i>P. collosum</i> <sup>14</sup>	root	pipercollosine(12), N-isobutyl-9(3',4'-methylene dioxyphenyl)2E,4E,8E-nonatrienamamide(29) and derivative(30)
<i>P. gutokadzura</i> <sup>15</sup>	stem	piperenone(13)
<i>P. methysticum</i> <sup>11</sup>	root	yongona(14)
<i>P. peepuloides</i> <sup>4-5</sup>	leave	Z-pyrrolidine-1,3-(6-methoxy-1,3-benzodioxol-5-yl)-1-oxo-2-propenyl(33)

Table 1 continue

<i>P. hostmannianum</i> <sup>16</sup>	stem	methyl 2,2-dimethyl-2H-1-benzopyran-6-carboxylate(34), methyl-4-hydroxy-3-(2'-hydroxy-3'-methyl but-3'-enyl)-benzoate(35)
<i>P. cubeba</i> <sup>17</sup>	stem	$\alpha$ -o-ethyl cubebin(36), $\beta$ -o-ethyl cubebin(37), 5''-methoxyhinokinin(38), monoacetate dihydro cubebin(39)
<i>P. ribesoides</i> Wall. <sup>18-19</sup>	fruit	heptadecanyl eicosanate(43), (-)-borneol p-hydroxy cinnamate(44)

## GENERAL UTILIZATION OF THE PLANTS IN PIPER GENUS<sup>2</sup>

### Piper betle L.

Piper betle L. is the species used in the "betle chew" which is so popular throughout the Far East; it is a variable plant with several cultivated forms. Although the leaves, root, and seeds may all be used as medicine, most mentioned are the aromatic leaves, described as having carminative, stimulant, corrective, prophylactic, stomachic, expectorant, tonic, astringent, and sialagogue properties. and have a prophylactic action in treatment of dysentery and fever, and certain gastric disorders. The bruised leaves are used externally heated and applied to the body after parturition, or heated and oiled then applied to the abdomen of a child for gastric disorders.

Piper cubeba L.

In **China**: The fruits of Piper cubeba are carminative and stomachic; they are a remedy for vomiting and stomach disorders, and sunstroke. The volatile oil decreased the death rats infected with influenza virus, as compared to that of a control group without the oil. In **Taiwan**: The species is used to treat gonorrhea and diabetes. In **Indo-China**: The drug is sialagogue stimulating the appetite, digestion, and secretions; however, prolonged use causes diarrhea.

In **Malay Peninsula**: This is one of 26 drugs, mostly spices with a few demulcents and astringents, pounded together and used in a decoction to be drunk at intervals after confinement. It is diuretic and, account of being a genitourinary antiseptic, has been used for a long time to treat gonorrhea; further, to treat rheumatism. In **Indonesia**: This species is present in native medicines to treat venereal diseases, dysentery, and other bowel troubles.

Piper longum L.

Piper longum ranges from **In Indo-china** and into **In Malay Peninsula**, and is cultivated elsewhere. As in species, the fruit is stomachic, and is a medication for sunstroke, intestinal catarrh, and stomachache, and also supposed to be vermifuge. It is a remedy for treating barren women and certain kidney and urinary difficulties. It cures, in general, illnesses accompanied by lowering of temperature. It a warming medicine. It dissipates phlegm and is especially valued in coughs, catarrhs, indigestion, and colic. In **Taiwan**: The root, flower, and young shoots are used. The roots are considered to be weaker in action.

Piper methysticum Forst.

So much research has been done on this species, found form In **New Guinea** to **Polynesia**, that here is given only the original use, which was to treat gonorrhea, and to note it has a double action, antiseptic and narcotic.

Piper nigrum L.

Piper nigrum , anative of India, is widely distributed throughout the tropical East in cultivation, as well as in the In **West Indies** and **Brazil**. In **China south** throughout our region, it is used externally as stimulant and rubefacient in poultices to treat adenitis, furuncles, colic, rheumatism, and headache;internally it is considered to be stomachic, stimulant of the appetite, diuretic, carminative, warming, an antidote against certain typesof food poisoning and it used to treat summer diarrhea, dysentery, cholera, menstrual pain, rheumatic pain, and gravel.

In **Malay Peninsula**: The natives considered oil of species a specific for cholera. It is included in tonics, mixtures for indigestion, and prescriptions used in and after childbirth. It may be combined with wild bamboo shoots or with honey and ginger as an abortifacient. In **ancient Chinese medicine**, the leaves were used to treat urinary calculus.

Piper retrofractum Vahl.

Piper retrofractum Vahl. ranges from In **Indo-China** and **Thailand south** into Asia. In **Indo-China**: it is used in medicine to treat various fevers, liver affections with jaundice or edema, migraine, and externally to treat rheumatism,

neuralgia, and boils and adenitis. The use is the same as that of *Piper longum* L. In **Malay Peninsula**: The natives take this species in tonics, after childbirth, and for any digestive and intestinal disorders, cramps, congestion of the liver. In **Indonesia**: Immature fruits are officinal, and are mixed in carminative, and sudorific remedies; species is an ingredient in a salve smeared on the abdomen of lying in women, the roots were chewed for toothache, or decoction of the leaves used as a mouthwash. In **Philippines**: The fruits are not mentioned in the uses, only the roots, chewed or in decoction, as a remedy for colic, dyspepsia, and gastralgia. The roots are scraped to get a powder to sprinkle on wounds or cuts.

*Piper sarmentosum* Roxb.

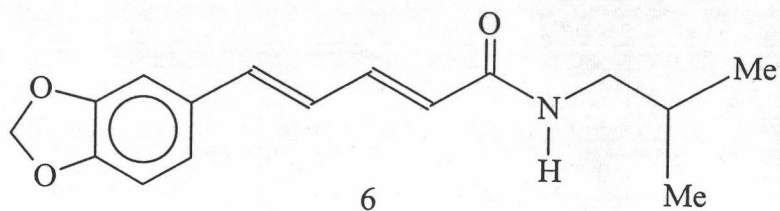
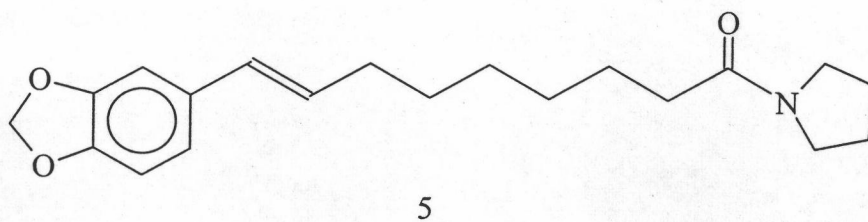
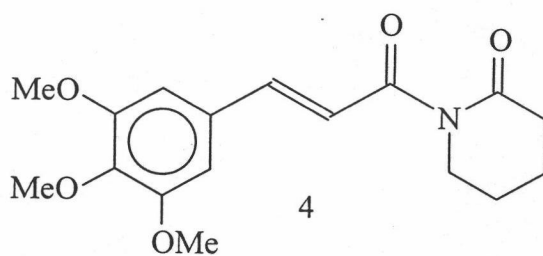
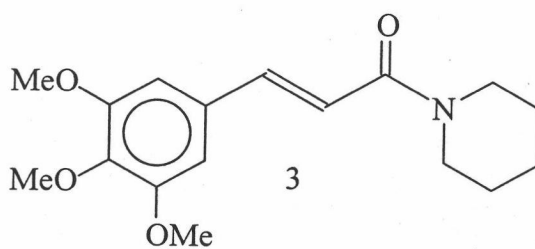
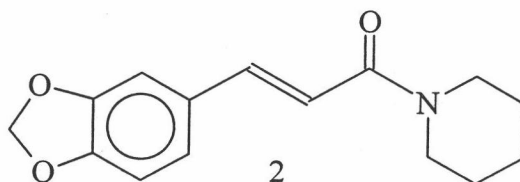
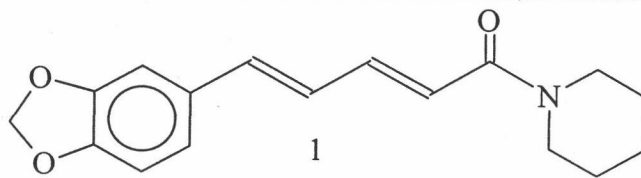
*Piper sarmentosum* Roxb. is found in In **India** and **China south** into **Indonesia**. **South China**: Cooked with rice, it is used as a medicine to decrease fever and to aid digestion. The root is a remedy for toothache and may be made into a wash for fungoid dermatitis on the feet. In **Malay Peninsula**: Leaves are applied to the forehead of children with headache. A decoction of the boiled leaves may be utilized as an embrocation and a rub-to cure weakness and pain in the bones, and further, for discoloration of the skin. In **Indonesia**: Rootlets chewed with betel nut and the juice swallowed is beneficial for neglected coughs and asthma; chewed with ginger to treat toothache; and chewed with a little nutmeg and ginger to treat pleurisy, at the same time warmed leaves coated with coconut oil are applied to the painful chest.

Piper reticulatum Linn.

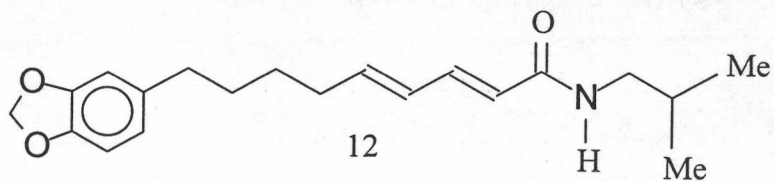
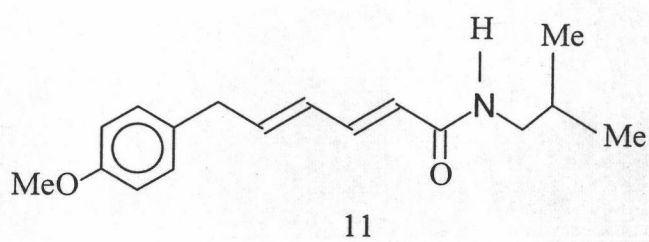
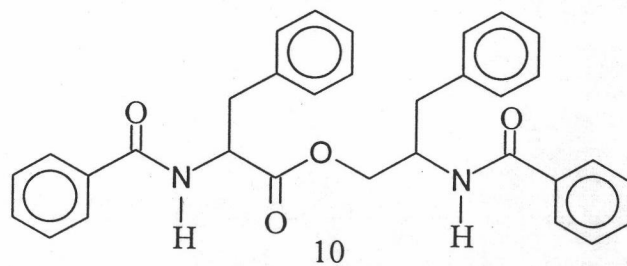
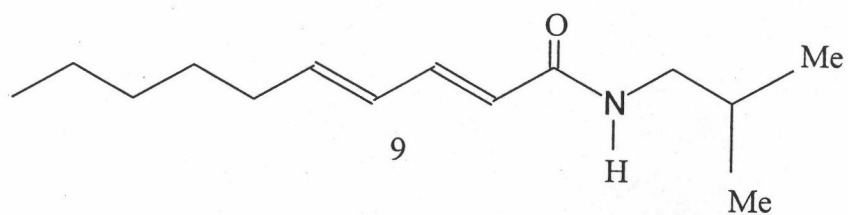
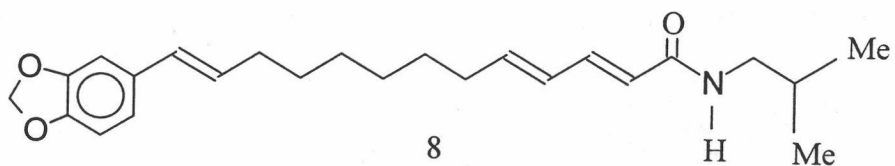
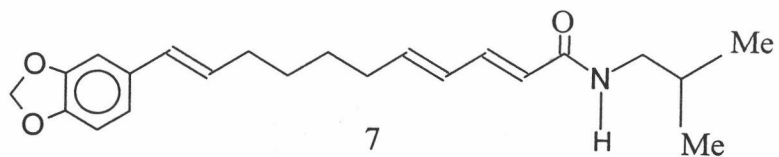
The root of this plant are used as stimulants on account of their aromatic pungent qualities. The root is a very powerful sialagogue, and often cures nervous toothach. The leave bruised are applied with success to the bite of serpents.

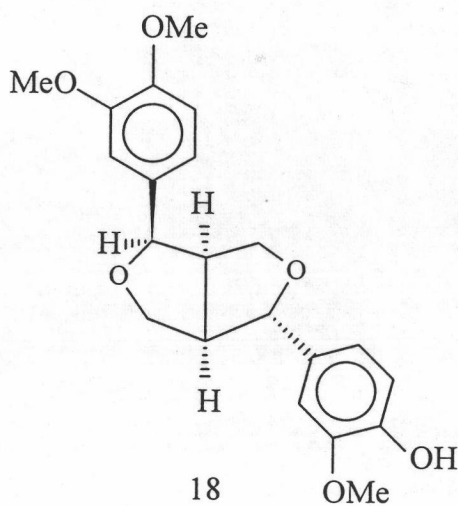
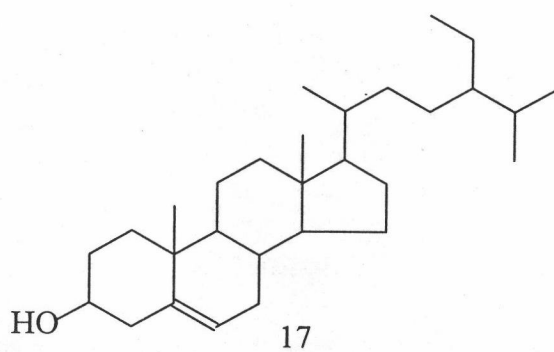
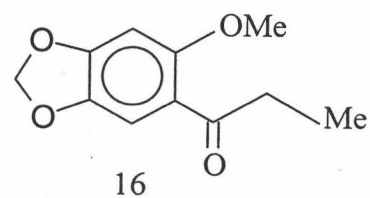
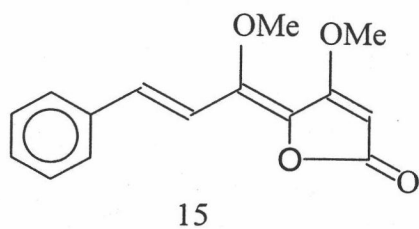
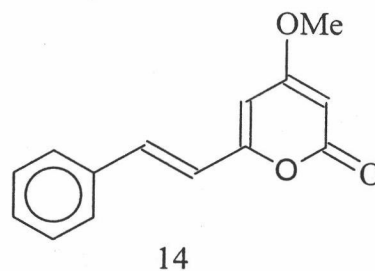
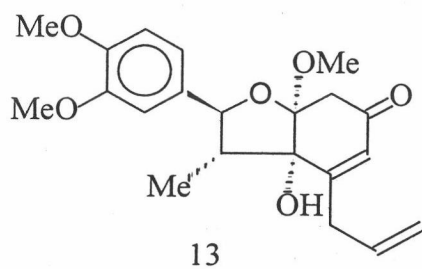
Piper ribesoides Wall.

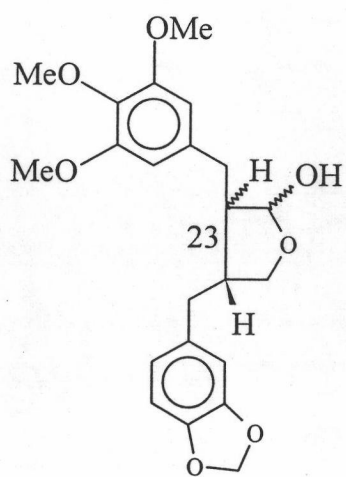
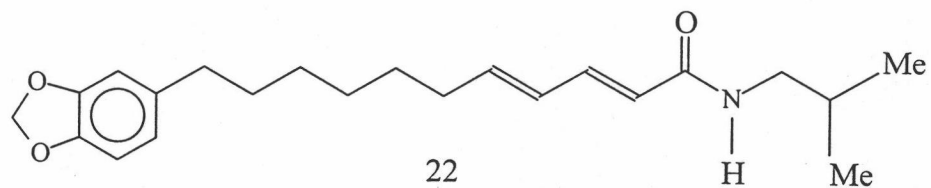
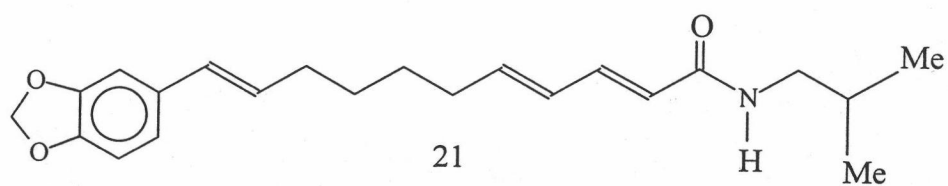
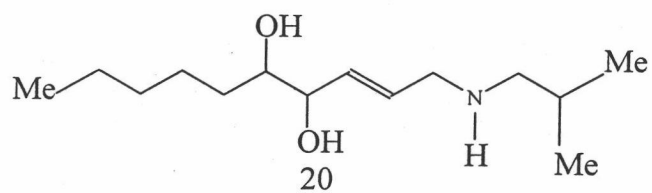
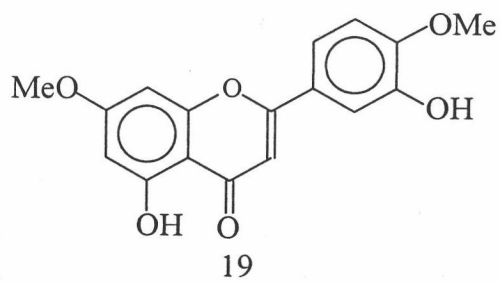
Piper ribesoides Wall. is principally used as a condiment to stimulate the stomach and promote digestion. As a medicine it is employed in the form of ointment mixed with lard, against taenia capitis; in affections of the mouth and throat requiring a powerful acrid such as relaxed uvula, or paralysis of the tongue it may be employed as a masticatory, it is a popular remedy for preventing the return of a paroxysm of intermitting fever.

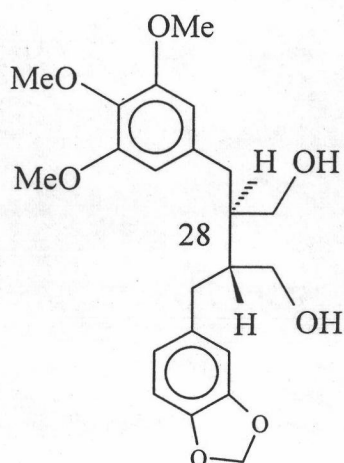
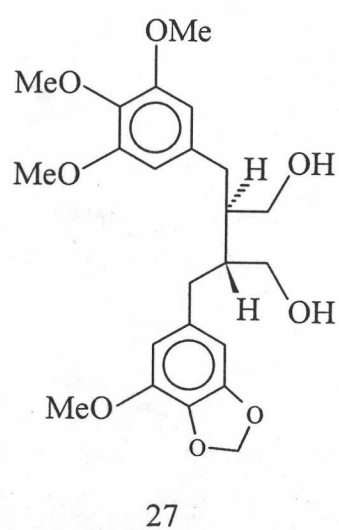
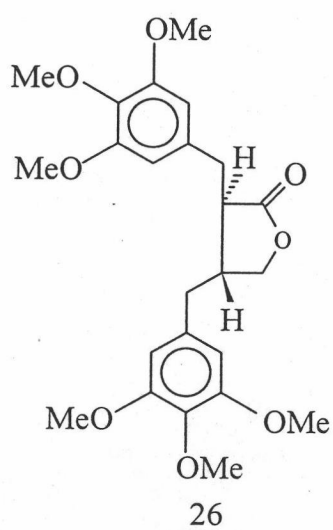
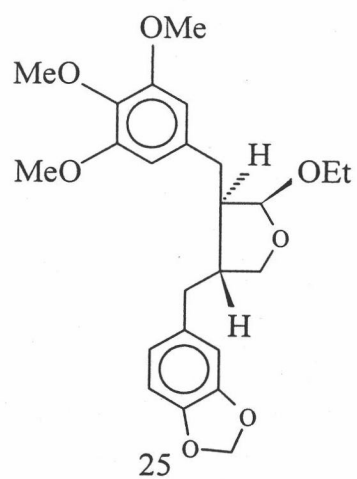
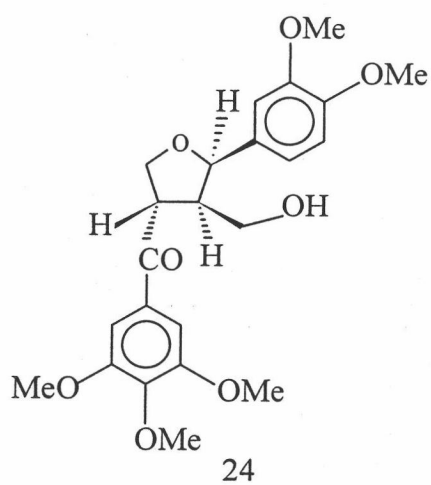


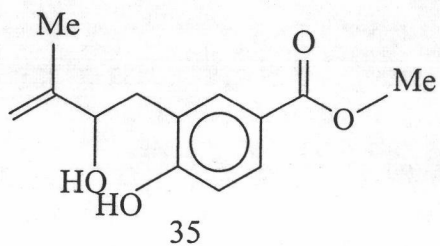
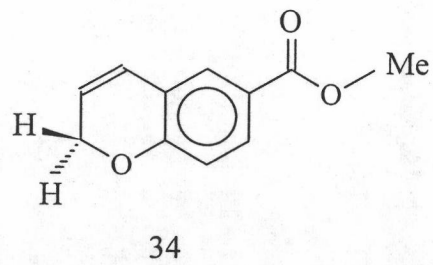
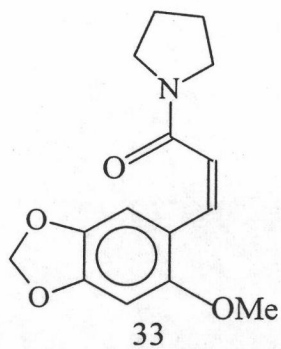
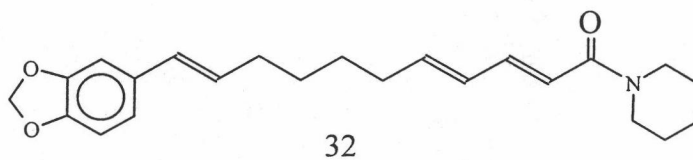
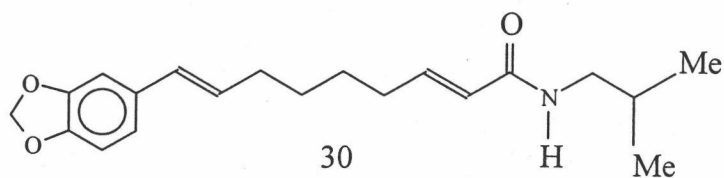
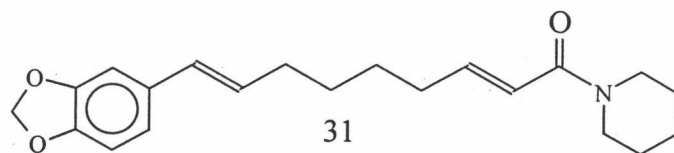
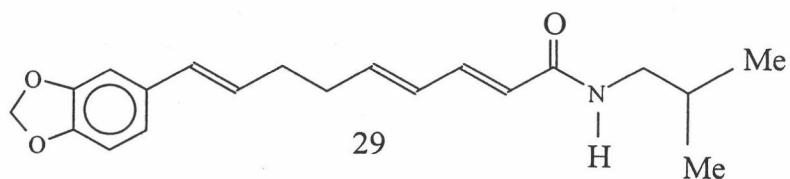


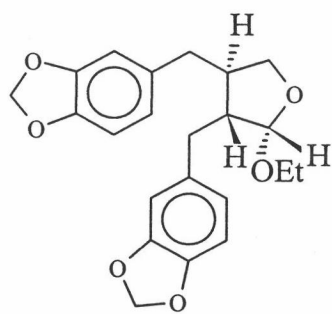




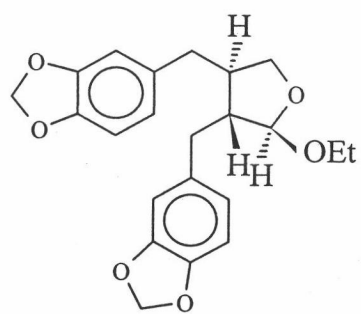




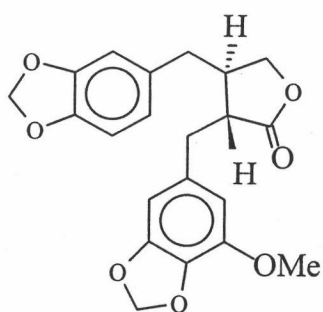




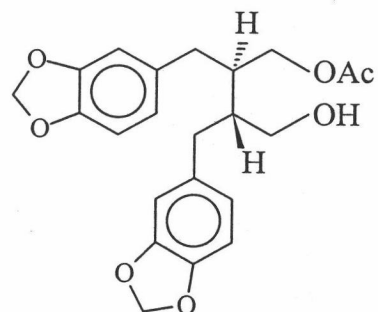
36



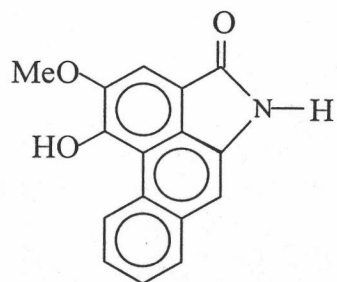
37



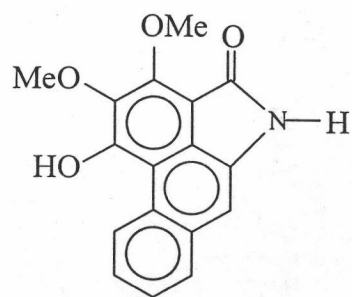
38



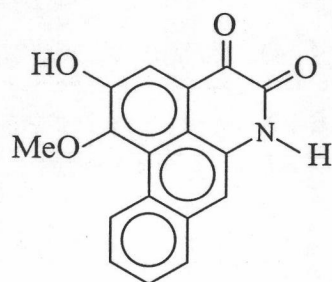
39



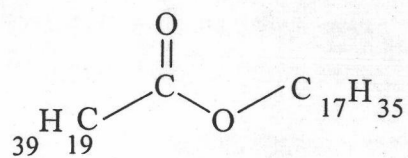
40



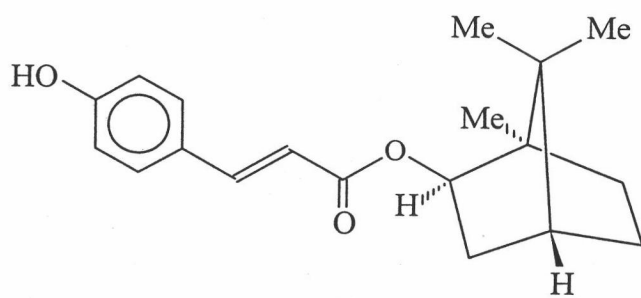
41



42



43



44