formulations are compared in Table 2 and are in good agreement.

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Diuretic activity of aqueous extract of Orthosiphon thymiflorus in rats

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Aqueous extract of Orthosiphon thymiflorus have been tested for diuretic activity in rats. The parameters taken for each individual rat were; body weight before and after test period, total urine volume (corrected for water intake during the test period), urine concentration of Na^+, K^+ and Cl^-. The extract given orally does not act as an aquaretic. The values of urine volume are only slightly elevated. However, the cation and Cl^- excretion is increased.

TWIGS of the genus **Orthosiphon** provide the base for a widely used herbal tea reported to have diuretic and blood purifying activity. Different **Orthosiphon** aqueous extracts have been reported to be diuretic[1-4] and antiinflammatory[5-6]. The present study focused on diuretic activity of the aqueous extract of **Orthosiphon thymiflorus** in albino rats.

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Orthosiphon thymiflorus was collected from Tirunelveli district of Tamil Nadu and confirmed in Central siddha research unit, Tirunelveli, Tamil Nadu and found to comply with all specifications. The aqueous extract was obatined by macerating 5 kg of whole plant of **Orthosiphon thymiflorus** with 50 l of boiling water. The filtrate was reduced to about 4 l in vacuo at about 35° and freeze-dried afterwards. The yield was about 750 g of freeze dried extract (17 %). Male albino rats with body weights between

Effect of *Orthosiphon* extract on excretary parameters

Experimental Group / Measured Parameter	Water control	Furosemide control	Orthosiphon extract 125 mg/kg	Orthosiphon extract 750 mg/kg	Orthosiphon extract 1 g/kg
Total volume of urine (ml/kg)	20.2 ± 1.7	25.4 ± 2.2	16.8 ± 1.4	18.3 ± 1.6	17.2 ± 1.6
Total sodium (μ moles/kg)	418 ± 27	2417 ± 66	532 ± 17	1127 ± 42	1924 ± 44
Total Potassium (μ moles/kg)	1532 ± 108	1944 ± 337	1618 ± 280	2034 ± 344	1958 ± 217
Total Chloride (μ moles/kg)	762 ± 326	3078 ± 1166	1674 ± 268	2092 ± 296	1596 ± 246

140-170 g supplied by King Institute, Guindy, Madras, were used throughout the study.

The method of Lipschitz **et al** (1943)[7] was employed for the assessment of diuretic activity. Groups of 6 male albino rats, each weighing 140-170 g, were fasted and deprived of water for 18 h prior to the experiment. On the day of experiment, animals were given normal saline orally 25 ml/kg of body weight in which the aqueous extract of **Orthosiphon thymiflorus** in doses of 125 mg, 750 mg, 1000 mg were dissolved, control animals received saline only.[8] Immediately after administration, the rats (three in each cage) were placed in metobolic cages specially designed to separate urine and faeces and kept at room temperature of $25^0 \pm 0.5^o$. The urine was colleted in measuring cylinders upto 5 h after administration. During this period, no food or water was made available to animals. The total volume of urine collected was measured for both control and treated groups. The parameters taken for each individual rat were, body weight before and after test period, total urine volume (corrected for water in take during the test period), urine concentration of Na^+, K^+, and Cl^-.

Na^+ and K^+ concentrations were measured by flame photometry and Cl^- concentration was estimated as sodium chloride by titration with silver nitrate solution (2.906 g/litre) using 1 drop of 5% potassium chromate solution as indicator. Furosemide-sodium salt was given by stomach tube as a reference diuretic and the optimal dose-activity relation was found to be 100 mg/kg in a series of supportive experiments.

The aqueous extract of **Orthosiphon thymiflorus** is found to be active on the renal system in rodents. Dose-response studies showed that the maximal activity to be at a concentration of 750 mg extract per kg body weight.

The data in the Table allow the conclusion that the extract does not act as an aquaretic. The values of urine volume are only slightly elevated, if at all, and oscillate within the standard deviation given. This is also valid for the reference substance furosemide. However, the cation excretion is increased. Furosemide increased Sodium excretion 6 times, while **Orthosiphon** extract at 750 mg dose by two fold. Potassium excretion level was significantly increased in comparision with water control. A very high increase for the Cl^- excretion was also observed.

The results clearly indicate that an aqueous extract of **Orthosiphon thymiflorus** does not act as

an aquaretic atleast in rats, but enhances considerably ion excretion almost to an extent similar to that produced by furosemide.

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Synthesis of Propafenone, an Antiarrhythmic Agent

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Propafenone, an antiarrhythmic agent belonging to class I C was synthesized by two different methods starting from phenol. Method-1 involving initial formation of chalcone from o- hydroxyacetophenone was superior over methods-2 with respect to yield and reaction process. In method-2, the oxypropanolamine chain was first built and then aldol condensation was carried out.

ARRHYTHMIA refers to the abnormalities of heart rate and antiarrhythmic agents used in arrhythmias are classified on the basis of their mechanisms of action.[1] Class I drugs [eg. quinidine, procainamide, disopyramide (I A); lidocaine, tocainide, mexiletine (I B); ecainide, flecainide, propafenone (I C)] block voltage sensitive sodium channels. Class II drugs (eg. metoprolol) are β-adrenergic receptor blockers. Class III (eg. aminodarone) - drugs act mostly by blockage of K^+ channels, while class IV drugs (eg. Verapamil) block slow inward calcium channel.

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Class I C antiarrhythmic agents depress phase-O of cardiac action potential without any effect on repolarization of cardiac cells. Among class I C drugs propafenone alone does not cause depression of left ventricular function and hence is superior to the other drugs. It can be safely used in asthematic patients where β- blockers cause complications due to bronchospasm. Unlike the calcium channel blockers, propafenone does not cause hypotention[2].

Studies indicate that propafenone is comparable in efficacy or more effective than quinidine[3], mexiletine[3], tocainide[2], flecainide[2], metoprolol[4] and amiodarone[2], in preventing and abolishing both