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RESEARCH ARTICLE

METHOD DEVELOPMENT FOR ESTIMATION OF ALCOHOL IN AYURVEDIC FORMULATIONS USING GAS CHROMATOGRAPHY

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Marketed herbal preparations containing self generated alcohol (herbal origin and allopathic) may affect the health of patients on faulty dosing. The method was set up for the quantitative estimation of alcohol by gas chromatography. The method was developed by changing various parameters of gas chromatography. Furthermore, the method was validated in order to confirm its reliability and potentials to use as quality control tool in QC laboratories. In ayurvedic preparation arishtha, the estimated alcohol (as self generated alcohol) was found to be 8.1% (khadirarishta), 10.2% (drakshakumari), 7.8% (saraswatarishta) and obeyed the label claim. The present work can be used as the method for routine quality and safety standardization.

Key words: Herbal formulation, Alcohol, Gas chromatography, Drakshakumari, Khadirarishta, Saraswatarishta

INTRODUCTION

Alcohol is the diluent in more than hundred proprietary products and is found in concentrations up to 70%. This causes significant trouble in patient management. *e.g.* patient under disulfiram therapy, in the patients with active peptic ulcer disease and in the patient under treatment with central nervous system depressants or other substances that interact with alcohol. The alcohol contents can cause various difficulties with abstinence programs and adolescent alcohol abuse (Dukes *et al* 1997). Pharmaceutical products containing alcohol like arishtas (containing self generated alcohol) has tremendous medicinal value (Kroes *et al* 1993), sweet taste and easy availability, due to which people are prone to abuse it by consuming higher doses of these drugs for longer periods. Hence standardization and development of reliable quality protocols for the formulations containing alcohol using sophisticated techniques of analysis is extremely important (Santosh *et al* 2003; Dash and Hashyap, 1987).

The Medicines Control Council is concerned about the influence of the simultaneous ingestion of alcohol and medicines on certain psychomotor functions and the consequent inability of the consumer to perform tasks which require mental clarity. Health care personnel should be aware of the alcohol content of medications when counseling patients receiving drugs against alcoholism or patients who should avoid alcohol (Dangor and Veltman, 1985). The content of ethanol, methanol, isopropyl alcohol in herbal extracts is routinely measured by gas chromatography. Routine GC applications include analysis of herbal extracts to comply to good laboratory and good manufacturing practices, several GC methods to monitor residual solvents have been reported in the literature (Puranik *et al* 2007; 2009; Mukherjee, 2002). In continuation of our work on method development for bulk drug and dosage forms