Chemical studies on some essential oils

Abd El Fattah Mohamed Hassanien El Zahwey

This study was conducted in the farm of Medicinaland Aromatic Plants Research Branch, Barrage, tostudy the effect of isolation methods, time of cutting,the different parts used for producing the oil and theeffect of storage on the physical and chemical propertiesof sage oil (Salvia officinalis) and the effect oftime of cutting and isolation methods on the physicaland chemical properties of Southernwood oil (Artemisiaabrotanum).The various results can be summarized as followsA - Sage oil1 - To study the effect of isolation methods on the physicaland chemical properties of sage oil, waterdistillation, steam distillation and bexane extractionmethods were used to produce the sage oil andthe results indicated that the steam distillationmethod was the suitable method to isolate the sageoil from the herb comparatively with the other methodsunder investigation due to tbe higher contentof thujone, the main component of sage oiland the high cost involved in the extraction process.2 - In order to study the effect of cutting time on thephysical and chemical properties of sage oil, theoil samples were obtained in 3 times, the first inspring before flowering stage, the second in summerand the third in winter. The results revealed thatthe oil sample obtained in winter had a good qualitythan that obtained in the other times which containthe largest amounts of thujone and the quality ofsage oil is referred mainly by its thujone content.On the other hand, cutting set as early in the springbefore flowering stage was suitable time to give alarge amount of oil.3 - To study the production of sage oil from the differentparts of the plant, the oil samples were obtainedfrom the whole flowering plants, flowering tops,leaves and stems. It could be generally concludedthat the oil sample obtained from the whole floweringplants was the highest quality and quantity. Onthe other hand, the oil sample distilled from thestem was a good quality.4 - Storage of essential oils is one of the most importantfactors which affect the physical and chemicalproperties of these oils as well as their rate of(b) - To study the effect of moisture. samples of oilwere stored at room temperature for 180 days inthe presence and absence of 1% moisture (w/w) andthe results indicated a noticeable change in thepresence of moisture which could be attributed tothe hydrolysis of the oil constituents.5 - By gas chromatographic analysis. 11 components wereidentified. These identified components namely:~-pinene. B-pinene. myrcene. cineol. P-cymene.thujone and borneol.B - Southernwood oil1 - In order to study the effect of cutting time on thephysical and chemical properties of southernwoodoil. the oil samples were obtained in spring andin summer. The results revealed that the oil sampleobtained in summer had a good quality and quantity.2 - To study the effect of isolation methods on the physicaland chemical properties of southernwood oil,water,distillation, steam distillation and hexane extractionmethods were used to produce the oil. Theresults revealed that steam distillation was suitableto isolate the oil from the plants comparativelywith the other methods.3 - By gas chromatographic analysis, 10 components wereidentified. These identified components namely:~-pinene, B-pinene, cineole, P-cymene, camphor, linalool,~-terpeneol, caryophyllene, geraniol andborneol. This study may be considered as a pioneerin the field of this oil as there were no literaturefound dealing with southernwood oil.