STUDY OF THE SYNTHESIS AND PHYSICO-CHEMICAL PROPERTIES OF DIISOPROPYLIDELAGOXYLINE

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Annotation: *Lagochilin diterpenoid was isolated from Lagochilus inebrians according to the method known in the literature, and its diisopropylidene derivative was synthesized on the basis of Lagochilin. physico-chemical properties and spectral properties were studied*

Keywords: *lagochilus inebrians, infrared spectroscopy, lagoxiline, diisopropylidene lagoxiline, thin layer chromatography*

INTRODUCTION.

The most common species of Lagochilus plants is the Lagochilus inebrians plant. The main active ingredient of the Lagochilus plant is the diterpenoid lagochilin, which is a four-atom alcohol. The plant contains a small amount of lagoxilin, mainly in the form of various acetyl derivatives. When it is extracted with alkali, they are hydrolyzed to free lagoxin.

To isolate Lagoxilin from the plant Lagochilus inebrians, the plant was crushed and sprayed with a 20% solution of alkali (sodium hydroxide), and after drying, it was extracted in a dichloroethane solvent. After the dichloroethane solution was concentrated by filtration, it was cooled in a refrigerator and the technical lagoxiline crystals were isolated. Technical lagoxiline was purified by recrystallization from acetone. The average yield of Lagoxilin was around 1.7-1.8%. The chemical formula of lagoxiline is shown in Figure 1[1-2].

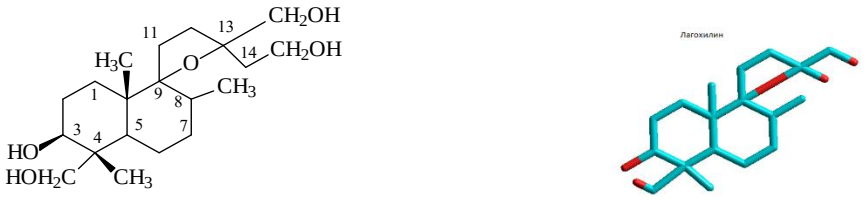
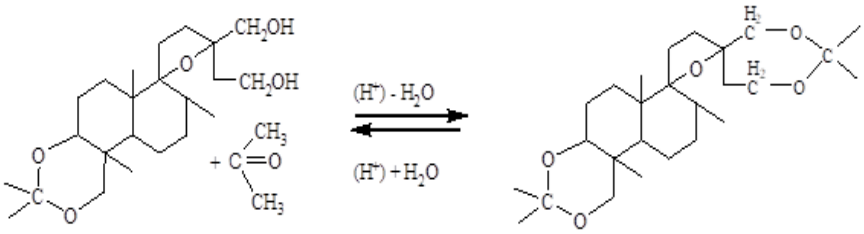


Figure 1. Chemical and conformational structure of lagoxiline

ANALYSIS OF OBTAINED RESULTS.

We will try to get dizopropylidene lagoxilin based on Lagoxilin, for this, dissolve Lagoxilin in absolute acetone, drop concentrated sulfuric acid on it until rN=3-4 and mix it, add copper sulfate salt to dehydrate it, leave it for 24 hours, put the mixture in a separation funnel, and extract it with cyclohexane 4 times from 100 ml. The solutions with cyclohexane were combined and washed with 5% sodium bicarbonate solution. The solvent (cyclohexane) was washed in a column with silica gel in the system of technical di-O-isopropylidene lagochyline, ether-benzene 15:1. , put the system from the column back into the column until the silica gel settles well. Di-O-isopropylidene lagoxyline mixture is mixed in the ether-

acetone 15:1 system and placed in the column until the silica gel settles well. We mix the fractions in the column and chromatograph them in the tetrachloromethane-acetone 7:5 system. it is recrystallized in ether, for this purpose, we heat Di-O-isopropylidenelagoxylin with ether until it dissolves in a reflux condenser, remove the solvent and pour it into the refrigerator to form a white crystal, filter it, wash it with absolute ether, and dry it to obtain Di-O-isopropylidenelagoxylin. The synthesis of di-O-isopropylidenelagoxyline when lagoxiline reacts with acetone in the presence of anhydrous copper sulfate is shown in Scheme 1.



Lagoxyline Acetone di-o-isopropylidenelagoxyline

Scheme 1. Scheme of the synthesis of di-O-isopropylidenelagoxyline

The chemical and conformational formulas of diisopropylidenelagoxyline are presented in Figures 2

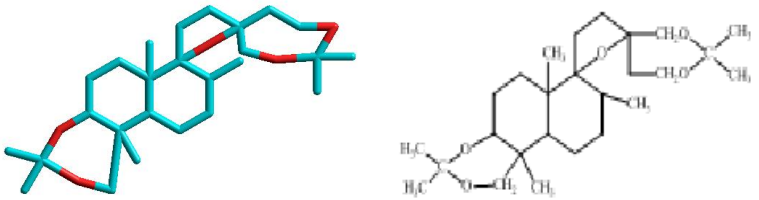


Figure 2. Chemical and conformational structure of diisopropylidenelagoxyline

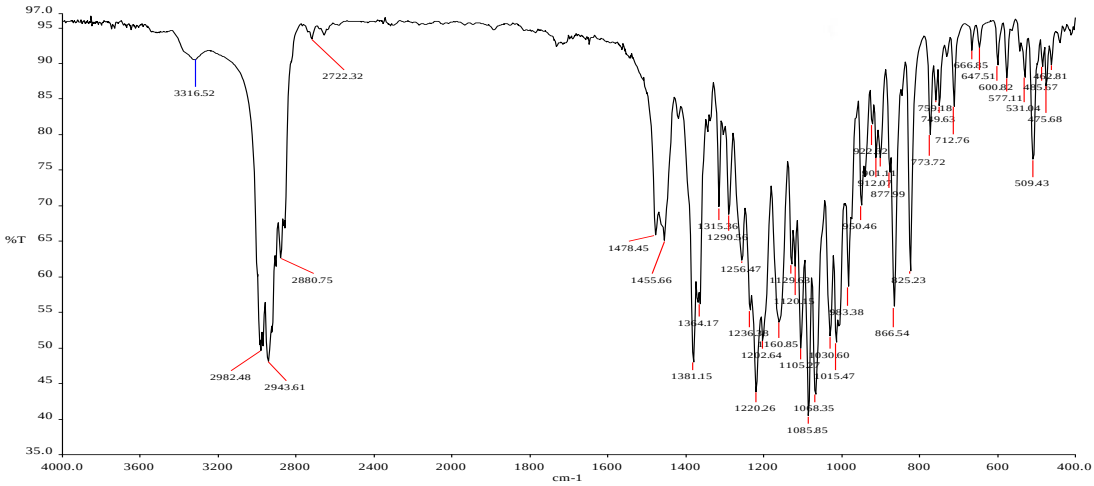


Figure 3. IR spectrum of diisopropylidenelagoxylin

In the IK-spectrum of diisopropylidene lagoxyline, the valence vibration frequencies of the SN3, SN2 groups in the molecule were shown at 2982, 2944, 2880 cm-1, the deformation vibration frequencies of the CH_3, CH_2, CH groups were observed at 1478, 1456, 1381, 1364 cm-1, at 1220 cm-1 symmetric valence vibrations of the epoxide ring were observed at 950 cm-1, frequencies typical of their asymmetric vibrations were observed, and deformational vibrations of this ring were observed at 866, 825 cm-1. At 1160-1068 cm–1, the valence vibration frequencies of C-O-C, C-OH bonds in the molecule were observed in the intensive state. Physicochemical properties of diisopropylidenelagoxylin are presented in Table 1

Table 1

Physico-chemical parameters of lagoxiline and diisopropylidene lagoxiline.

№	Substances	Gross Formula and Mol.weight.	$T_{.liquid}$. C^0	R_f (system)	$[\alpha]_D$ 0,5% water:ethanol 1:1	IR spectrum $см^{-1}$
1.	LG White crystal	$C_{20}H_{36}O_5$ 356	167-168	0,15 (I)	-	1053(-O-); 2938,(CH_3) 3336,(OH)
4	DIPL White crystal	$C_{26}H_{44}O_5$ 436	118-119	0,84 (Ш)	+8	1478(-O-);2943,(CH_3) 3316,(OH)

I. Tetrachloromethane-acetone 7:5 III.. Chloroform-acetone 9:1,

In short, the results of studying the composition and structure of the obtained compounds showed that ulra is an individual compound.

CONCLUSION

Diisopropylidenlagoxylin was synthesized. physico-chemical properties and spectral properties were studied.

LITRATURE:

1.Акопов И.Э. Кровоостанавливающие растения. Ташкент «Медицина», 296,1981.

2.Акопов И.Э. О гемостатической эффективности лагохилина и лагохилина ацетата. В кн: Проблемы гемокоагуляции в экспериментальной и лечебно-профилактической работе. Под. ред. Акопова И.Э. Краснодар, 12, 1976.

3.Исламов Р. Дис... на степ.уч.степени канд.хим.наук., Ташкент, 142 с., 1988

4.Зайнутдинов У.Н. Дитерпеноиды растений рода Lagochilus // Дисс. докт. хим. наук. Т.1993. С.253.

5.Монография. Зайнутдинов. У.Н. Маулянов. С.А. Исламов. А.Х. // Lagochilus авлодига мансуб ўсимликлар кимёси, биологияси ва физиологик хоссалари.// Тошкент«Университет» 2019 Б.194

6.Монография. Исломов А.Х, Матчанов А.Д, Қурбанова А.Дж, Комилов Қ.У. //Лагохилиннинг ацетил ҳосилаларининг глицирризин кислотаси, унинг тузлари билан комплекс бирикмалари ва гемостатик фаоллиги // “Lesson Press”МЧЖ нашриёти, Тошкент-2022., 108 б.