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PREPARATION OF SUPRAMOLECULAR COMPLEXES OF DIIZOPROPYLIDENLAGOXYLINE WITH GK, GKMAT AND GKMKT.

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Annotation: *In this thesis, diterpenoid lagochilin (LG) was isolated from Lagochilus inebrians plant according to the method known in the literature, and its derivative Diizopropylidene lagochilin (DIPL) was synthesized on the basis of lagochilin. Supramolecular complexes of diizopropylidene lagoxilin were obtained for the first time with glycyrrhizic acid (GK) and glycyrrhizic acid monoammonium (GKMAT), glycyrrhizic acid monopotassium (GKMKT) salts isolated from the dark extract of the root of Glycyrrhiza glabra L. and it is said that their physicochemical properties and spectral properties were studied.*

Key words: *lagochilus inebrians, lagochilus pubescens, Glycyrrhiza glabra, infrared spectroscopy, lagoxiline, diizopropylidene lagoxiline, glycyrrhizic acid, monopotassium salt of glycyrrhizic acid, monoammonium salt of glycyrrhizic acid, thin layer chromatography, hemostatic activity.*

INTRODUCTION.

The plant Lagochilus inebrians has long been known in folk medicine for its hemostatic properties, and it is one of the most effective hemostatic medicinal plants. Decoctions and infusions based on the Lagochilus plant have been used in folk medicine to stop various bleedings. The pharmacology of Lagochilus plant species was studied at the pharmacology departments of the Kuban, Samarkand, Andijan medical universities. Among them, aqueous and alcoholic decoctions of Lagochilus inebrians have been found to have physiologically active properties such as sedative, hypotensive, sedative, anti-shock, anti-radiation and anti-allergic (anti-allergic) in addition to hemostatic properties.

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. [1-7].

Based on the method known in the literature, in order 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. We will try to get dizopropylidene lagoxilin based on Lagoxilin, for this, dissolve Lagoxilin in absolute acetone, drop concentrated sulfuric acid on it until pH=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-izopropylidene lagochyline, ether-benzene 15:1. , put the system from the column back into the column until the silica gel settles well. Di-O-izopropylidene 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-izopropylidenelagoxylin 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. Lagoxyline was reacted with acetone in the presence of anhydrous copper sulfate to form Di-O-izopropylidenelagoxyline. In the IK-spectrum of diisopropylidene lagoxyline, the valence vibration frequencies of the CH_3, CH_2 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.

Supramolecular complex compounds of GK and GKMAT with diizopropylidenelagoxyline in molecular ratios of 1:2, 1:4, 1:9 were obtained. The physico-chemical and spectral properties of the obtained supramolecular complex compounds were studied. Supramolecular complex compounds of 1:2, 1:4, 1:9 molecular ratios of GK obtained with diizopropylidenelagoxylin are white amorphous powders, well soluble in water. Supramolecular complex compounds of GKMAT obtained with diizopropylidenelagoxylin in molecular ratios of 1:2, 1:4, 1:9 are pale yellow amorphous powders, well soluble in water. They are optically active compounds, substances that bend the plane of polarized light. In the IR spectra of the obtained compounds, valence vibrations of carbonyl groups are observed in the range of 1740-1725 cm^{-1}, and in the range of 3400-3250 cm^{-1}, the valence vibrations of hydroxyl groups involved in the formation of hydrogen bonds are observed as broad shoulders. It was found that the deformation vibrations of the methyl groups in the molecule of diizopropylidenelagoxyline GK and its monoammonium salt appear in the range of 2935-2925 cm^{-1}.

The resulting complex compounds are white and white-yellow in color, well soluble in water. In the UB spectrum, the intense absorption maximum corresponding to the π-π* transition of C=O conjugated with a double bond in the S ring of GK and its salts is observed at a wavelength of 250-252 nm in the near UB region in the water:ethanol (1:1) system. Since diizopropylidene lagoxyline also does not have a chromophore group, it does not show absorption in the UB spectrum.

Based on the change of the fundamental vibration frequencies of the functional groups in the IK spectra of the initial substances, it is possible to judge what kind of interactions exist between molecules in the formation of molecular complexes. In particular, the valence vibration frequencies of the OH group in the GKMKT molecule were shown at 3390 cm^{-1}, and in the complex at 3404 $cm^{-1.}$ The difference in valence vibration frequencies of OH groups by 23 cm-1 indicates the formation of hydrogen bonds in the complex. In addition, the fact that this area has a broad shoulder indicates the presence of ion-dipole interactions between molecules. In the 1039 cm^{-1} bands, the valence vibration frequencies of the C-O-C and C-OH bonds in the GKMKT molecule were observed in an intensive state, and the vibration frequencies of these bonds in the complex were observed in the 1082, 1044 cm^{-1} bands, due to the formation of hydrogen bonds between these groups during the formation of the complex. indicates. In addition, the valence vibration frequency of the epoxy ring in diisopropylidenelagoxylin in the complex was observed in the region of 1215 cm^{-1}. [8-10].

CONCLUSION

1. Supramolecular complex compounds of GK, GKMAT, GKMKT with diizopropyliden lagoxylin in molecular ratios of 1:2, 1:4, 1:9 were obtained.

2. Some physicochemical parameters, IK spectra of supramolecular complexes of GK, GKMAT and GKMKT salt with diizopropyliden lagoxylin were studied.

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