

## CHARACTERIZATION OF POLYSACCHARIDES ISOLATED FROM STEM OF *ANGELICA DAHURICA*

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### ABSTRACT

*Such pectin (5.77±0.02)%, fiber (24±0.01)%, lignine (10.790.03)% have been founded in the medicinal herb called 'Angelica'. The average molecule mass of pholysugar was determined by the methodology of chromatography of chromatography of gel-filtration of the (15500-400000). It has founded first time that the glucose thermal galactose has connected as 1,4 connection in connection with the monomer assortment of neutral pholysugar founded in monosaccharide. The rhamnase-terminal, xylose-terminal are connected by 1,3 connection in the circulation of macromolecule of polysaccharide. Pectin of substance derivative compound to extract. In polysaccharide has to establish etherify carboxyl group (7.47)% and methoxyl group (5.14)% and etherification degree (51.4)%.*

**KEYWORDS:** chromatography, monosaccharide, pectin, glucose

### INTRODUCTION

In recent years scientist have studied medical plants, polysaccharide's composition, structure properties and their values. Therefore we to do study the polysaccharide same the of medical plant and composition structure. For long time developments history of making, always used medicine and valuable plant. To biologically active of the medical plant been with properties mutually different depending on for them contain of the substance content, composition and structure of the molecular, and chemical bond type and to extract take methodology and geographical features. Thus it is theoretically and practically required to make research work on chemical elements of medicinal herbs that are planting in the special weather of Mongolia. Specially, those research works are still highly required, which have done among technological process of extra biological products

that are dressed by polysaccharide, phlawonoid and dust acid. The contemporary technological revolution inevitably brings comprehensive changes in the lifestyle of modern community. Abundance of alimentation in the developed societies and abuse of easy access and changes and skyrocketed morbidity of such typical diseases of modern time as diabetes, heart and circulation problems like atherosclerosis, heart infarction, ischemic diseases and other metabolic maladies recently. It had also triggered such dramatic anthropogenic trends as severe generalized environmental pollution exercising direct impact on human heart conditions too. Biologically active food additives are overcoming certain nutritional narrow moments. These bio-active additives have such essential components as pectin, cellulose, hemicelluloses. These agents are deg, designed to be eliminated from human bodies, the harmful food derivatives, comprehensive chemical components, heavy metals, salt and free radicals.

## MATERIALS AND METHODS

The medicinal herb called “Angelica” has taken from the forest of Bogd-uul of Ulaanbaatar city from August of 2003 and 2004 and kept in room temperature as dried condition. The sample of the herbs have crumpled by 0.8-1mm and used the methods of gas chromatography, gel-filtration and metalizing. As well as chemical research methodologies have done such as chromate mass spectrometry. Creation of optimal conditions for

extracting of pectin from Angelica stem: The sample of angelica provided by diethyl ether aren't substances chlorotfil and oil further in the study of use. Many scientists had reported earlier positively reconfirming that the volume of pectin being extracted therefore it's physical and chemical features are directly correlated to the methods of its production. Those medicinal herbs are used for many other diseases according to the traditional medicine.

## RESULTS AND DISCUSSIONS

An experiment was produced the of pectin substance and carry suitable condition from stem of Angelica.

Table 1

Dependence yield of the pectin substance from pH

№	pH	Yield,%
1	1.01	3.17
2	1.53	1.23
3	2.05	6.1
4	2.57	5.37
5	3.08	5.36
6	3.53	4.98

Pectin – an yield of substance is more barrage in the medium pH=2, but for the concentration aced medium has decayed it's macromolecular chain tank and has hydrolyzed also of depending on curable of

the compositing carbohydrate complex compound hydrogen bond in the weak acid medium in a plant cell wall the yield different is mutually.

Table 2

Dependence yield of the pectin substance from temperature

№	T <sup>0</sup> C	Yield,%
1	20	1.29
2	45	1.35
3	70	2.45
4	80	3.1
5	90	2.91

Table 2 proves that gaining of pectin at the temperature of 20-90<sup>0</sup>C is much higher than at 80<sup>0</sup>C.

Table 3

Dependence yield of the pectin substance from time

№	Time/min/	Yield,%
1	30	1.01
2	60	1.57
3	90	2.35
4	120	2.33

For instance, the productivity varies significantly at the period range from 30 to 120 minutes and that the highest productivity had been achieved at the rate of 90. We have therefore found that in the solution of pH=2.01 and at the temperature 80<sup>0</sup>C and finally by a procedure lasting for 90 minutes the optimal

condition for pectin extraction is being greaten. Finding biologically active source of food fiber from natural raw material has medical, food and technical benefits. Therefore the of food fiber in the content determination to contain of a stem Angelica.1

Table 4

Content of the polysaccharide in the stem of *Angelica dahurica* (Fisch)

№	Polysaccharide type	Content %
1	Pectin	2.72 ± 0.02
2	Protopectin	3.03 ± 0.02
3	Summary pectin	5.75 ± 0.02
4	Fiber	24.0 ± 0.01
5	Lignin	10.79 ± 0.03

Table 4 shows that pectin content is (5.75)%, lignin (10.79)% which underlines it's high level of presence. Thus we have obtained pectin, which is in fact an

essential component for nutrition and key resource for medical purposes.

Table 5

Content of functional groups of pectin

№	Functional groups	Content %
1	Free carboxylic group - COOH	7.05
2	Methylated carboxyl group-COOCH <sub>3</sub>	7.47
3	Methoxyl group – CH <sub>3</sub> O	5.14
4	Degree of etherification	5.14
5	Anhydrogalacturonic acid	81

The principal property of pectin is composing of dilating. Basing on this ability pectin is broadly used in bakery and mainly in candy industry when with the help of organic acids and sugar various marshmallow cookies use to be manufactured. Pectin is used in food industry as a thickening component oar conserving

agent. The technology of obtaining pectin varies broadly. Depending from the type of raw materials pectin may deliver different sorts of gelatin. We carried out a comparative analysis of a number of different types of gelatin.

Table 6

The relationship between the action of the formation of gel states and methoxylgroup of pectin substances

№	Pectin resource	Methoxyl group-CH <sub>3</sub> O%	The properties strong of gel state of pectin substances
1	Apple	8.92	++++
2	Angelica dahurica	5.14	++
3	Rheum undulatum	6.94	+++

Pectin of substance ability trigger a jelly grow each move up in the methoxil group content t.e has been of depending on direct from methoxil group content.

## CONCLUSION

- We have identified that the optimal condition to prepare pectin decoction from coalescent is pH=2, temperature 80°C, duration 90 minutes.
- It has been found that pectin polysaccharide contained ether carboxyl group 7.47%, methoxyl group 5.14, and free carboxyl 7.05%.
- The analysis of polysaccharide content in coalescent had revealed that total pectin is 5.75% and that of lignin is 10.79%, fiber is 24%

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