of cancer treatment. With the development of medical technology, key genes, signal pathways and biomarkers are gradually clear, NTCM are used for HCC widely[2]. In this paper, we introduce the effects of NTCM on HCC.

The advantage of NTCM NTCM refers to the active compounds, effective part and the parent drug of TCM with less than 100 nanometers particle size made by nanotechnology. Compared with other preparations, NTCM can promote the dissolution of drugs and improve the drug bioavailability because of the large specific surface area and distribution in the body. NTCM can be captured and phagocytosis easily by liver cells due to the characteristic of particle size and shape so that drugs gather in the liver and gradually degrade release to the blood circulation. It means that it can enhance the efficacy and reduce adverse reactions. In summary, NTCM have many new features and characteristic that accelerates the TCM modernization[3].

The mechanism of NTCM on HCC The pathogenesis and progress of HCC is complex involving the changes of carcinogenic suppressor genes and the involvement of many small molecule substances in the formation of signaling pathways[4].Therefore, there are many therapeutics targets in the progress of tumor proliferation, differentiation, angiogenesis, invasion and metastasis, which can significantly inhibit or kill tumor cells via these targeted intervention[5]. The main receptors in the liver are the sialo glycoprotein, the folate receptor. Glycyrrhizic acid and glycyrrhetinic acid has a good liver targeting effect. The binding sites of glycyrrhizic acid and glycyrrhetinic acid are present on the hepatocyte membrane, and the carrier material modified with glycyrrhizic acid or glycyrrhetinic acid has hepatic targeting tendency, so glycyrrhizic acid and glycyrrhetinic acid are important modification materials for liver[6]. So the nanometer preparation with the adaptive vector can be actively gathered in the tumor area, which makes the tumor tissues in a relatively constant high concentration of drug environment and inhibit tumor growth[7].

Result and discussion In this paper, we introduce the preponderance and mechanism of NTCM on HCC. NTCM can not only greatly improve the drug activity and bioavailability, and may even produce new effects, reduce side effects, have strong targets and cure some difficult illness cases. NTCM produced under the method of improving efficacy and grain refinement, but its essence is still TCM. So compared with western drugs, its research direction must maintain its characteristic, and the study should proceed under the safe and effective guidelines, which not only pays attention to the “magic” of NTCM but also the clinical test results.

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PREPARATION OF SILYMARIN SOLID DISPERSION AND DETERMINATION OF DISSOLUTION RATE

Liu Jianqiao, **Zhu Yanhua***

School of Pharmacy, Heilongjiang University of Chinese Medicine, P.R.China *Corresponding author: ZhuYanhua, Address: Heping Road 24, Harbin 150040, School of Pharmacy, Heilongjiang University of Chinese Medicine, P.R.ChinaEmail:1049132403@qq.com

Object: To prepare silicist solid dispersion with water-soluble material as carrier, and to increase the dissolution rate of silymarin. Methods: A solid dispersion of silymarin was prepared by using polyethylene glycol 6000 (PEG6000), povidone K30 (PVPK30) and povidone K30 plus Tween-80 as the carrier, and the in vitro dissolution test was carried out. Results: The solid dispersion prepared by PEG6000 and PVPK30 could increase the dissolution rate of silymarin and the dissolution rate of the solid dispersion prepared with PVPK30 plus Tween-80 was better than that of PEG6000 and PVPK30 alone dissolution rate of silymarin solid dispersion.

Key words: silymarin; solid dispersion; solubility; dissolution rate

Silymarin is a flavonoid lignan compound extracted from the artemisia of the genus Compositae, consisting mainly of silybin, isosuhydrolilide, water fly thistle and silynine. Which is the highest content of silybin, the activity is also the strongest, with the role of liver protection, clinical mainly for the treatment of chronic hepatitis. Silymarin in water, oil, the solubility is small, the dissolution rate is slow, affecting its bioavailability. In order to improve the solubility of the drug in water, the solid dispersion technology was used to make silymarin into solid dispersion, and the solubility and dissolution of silymarin were measured by UV spectrophotometer.

Objective A silymarin solid dispersion with high solubility and high dissolution rate was prepared and compared with several carriers. The best carrier.

Materials Silymarin, silymarin reference substance, polyethylene glycol 6000, povidone k30, Tween 80

Methods The solid dispersion of silymarin was prepared by solvent method and PVPK30 as carrier. The solid dispersion of silymarin was prepared by solvent method with PVPK30 plus Tween 80 as carrier. The solid dispersion of silymarin was prepared by using PVPK30 as carrier. The solubility and dissolution rate of the three solid dispersions were measured and calculated by four-meter and ultraviolet spectrophotometer. The three solid dispersions were compared

Results and discussion The solid dispersion was prepared by PEG6000, mainly using the melting method, which requires that the raw material is not easily decomposed by heat, and the silymarin in this experiment did not degrade during the preparation of the solid dispersion on the water bath at 75 ℃.The solubility and in vitro dissolution of silymarin were increased by PEG6000, PVPK30 and PVPK30 plus Tween 80 as the carrier. The solubilization effect of solid dispersion prepared with PVPK30 plus Tween 80 was better In PEG6000 and PVPK30, the dissolution rate was also higher than PEG6000 and PVPK30, and both were better than the drug itself.

Tab.1 The influence of different kinds of carrier on the drug dissolution profile

Time （min）	0	5	15	30	60
PVP	0	72.39	80.28	83.13	83.67
PEG	0	61.17	68.49	72.52	73.85
PVP+Tween-80	0	75.46	83.34	87.29	87.85

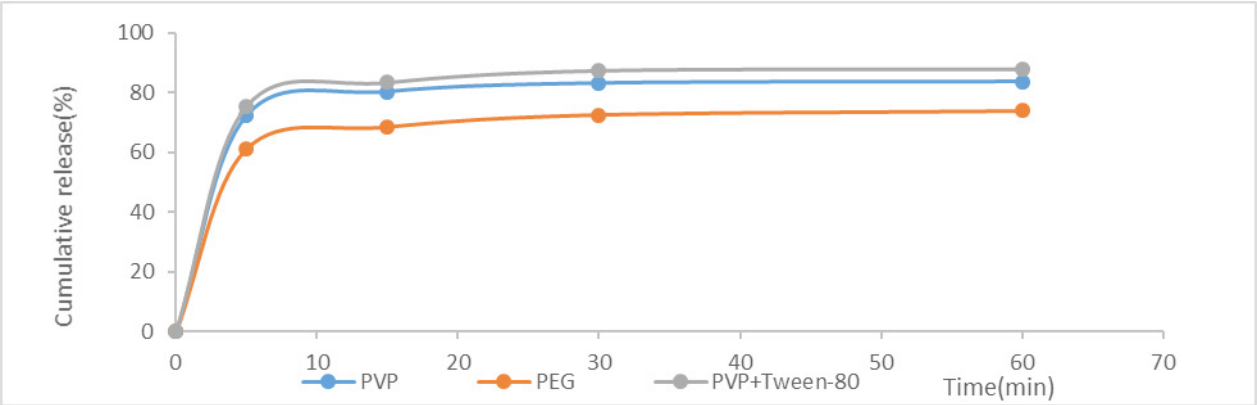

Fig.1 The influence of different kinds of carrier on the drug dissolution profile

In the solid dispersion, due to the presence of a soluble solid dispersion carrier, the tendency of highly dispersed particles is suppressed, and the dissolution of the drug is promoted due to the promoting effect of the carrier on drug dissolution and the inhibition of the drug.

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