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## Original article

# Research on Medication Regularity of Traditional Chinese Medicine Based on Hyperuricemia Patents

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### ABSTRACT

**Objective** To study the medication regularity of Chinese herbal medicines based on hyperuricemia patents. **Methods** Access database was established to summarize the patents regarding hyperuricemia disclosed by State Intellectual Property Office (SIPO) of the People's Republic of China in 1986–2015. Statistically analysis was performed by Chinese Medicine Inheritance Support System (TCMISS). **Results** The literatures of Chinese herbal medicines treating hyperuricemia were 1223, and 138 papers were included by excluding and screening, and contain 282 kinds of traditional Chinese medicine. **Conclusion** By analyzing the frequency, efficacy, flavor, channel tropism, and composition of the herbs used, we recognize that the efficacy of herbs in curing hyperuricemia is mostly clearing heat and promoting diuresis, invigorating the circulation of blood, dispersing stasis, alleviating water retention, and reinforcing deficiency concurrently. Flavors are mostly sweet, bitter, and cold. Channel tropism is mainly to liver, spleen, stomach, lung, and kidney. It provides the medication consideration for clinical treatment of hyperuricemia.

#### Key words

hyperuricemia; medication regularity; patent; traditional Chinese medicine

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## 1. Introduction

Hyperuricemia is a kind of metabolic disorder disease, which is caused by excessive production of uric acid inside the body or/and excretion insufficiency. Under the condition of low purine diet, the average level of fasting serum uric acid was two times higher than 416 mol/L and 357 mol/L for male and female respectively. Previous studies have shown that hyperuricemia was closely related to hypertension, hyperlipidemia, diabetes, nephropathy, cardiovascular disease, and metabolic syndrome, and has become one of the main metabolic disorders threatening human life (Short et al, 2005; Heinig et al, 2006; Choi et al, 2007). Since “hyperuricemia”

was not clearly recorded in traditional Chinese medical literatures, some scholars (Bo et al, 2008; Qiu et al, 2008) considered that it might belong to category of “damp-toxin”, “pyretic arthralgia”, “gout”, or “Lijie”, etc from the point of clinical outcome. Whereas some other scholars (Qian et al, 2013) were concerned that it would be more appropriate to name hyperuricemia as turbidity stasis disease, because it not only made clear etiology and pathogenesis of traditional Chinese medicine (TCM), but also distinguished itself from “gout” and “arthralgia syndrome”. The morbidity of hyperuricemia has greatly increased in recent years, predominately in males in coastal region. According to the results of USA national health interview survey in 2007–2008

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(Zhu et al, 2001), the prevalence of gout was 3.9% (830 million people), male's prevalence of gout was 5.9% (6.1 million people), and female's prevalence of gout was 2.0% (2.2 million people). During the past 20 years, the prevalence of gout has increased by 1.2%. Treatment of hyperuricemia with Western medicine has certain side effects and contraindications. However, TCM treatment has the advantages of little side-effect due to it takes overall concept into consideration, adopting syndrome differentiation and treatment, multi-level and multi-targeted. Therefore, based on analysis of hyperuricemia patents disclosed in 1986–2015, this paper aims to provide the basis for TCM treatment of hyperuricemia, making prescriptions and using herbs, and provide the reference for future patent application.

## 2. Methods

### 2.1 Retrieval methods

“Patent Retrieval and Analysis” was performed under SIPO of the People's Republic of China 1986–2015. The keyword “hyperuricemia” was input directly in “Patent Retrieval”, a total of 1223 records are retrieved. Execution time was 2015-07-26.

### 2.2 Patent inclusion/exclusion criteria

Inclusion criteria: All literatures regarding TCM treatment of hyperuricemia.

Exclusion conditions: 1) Without details information of the literatures; 2) Foreign literatures do not concern TCM; 3) Chinese literatures have nothing to do with TCM; 4) The same TCM literatures are applied by the same applicant.

### 2.3 Data extraction

Access database was established. The documental information such as patent name, application number, disclosure time, applicant (patentee), inventor, address of applicant, nationality, abstract, invention form, and prescription of Chinese herbal medicines was extracted.

## 3. Results

### 3.1 Literatures screening

According to retrieval method, 1223 records were retrieved, and 138 literatures were enrolled into analysis, of which 89 literatures were displayed in TCM combination form, while the remaining 49 literatures were shown in single TCM form (Figure 1).

### 3.2 Documental data analysis

#### 3.2.1 Frequency result of commonly used medicines for hyperuricemia

For easier data analysis, medicine names should be unified: TCM with multi alternative names was classified to the same one and TCM with various processing methods all mainly adopted the rectification of name in Chinese materia medica (CMM) (Gao, 2009) which was ordinarily advanced education Nationally Planned Textbook for “Tenth Five-year Plan”; The same TCM with different medicinal parts did not combine. The statistical results were as follows: In 138 literatures, 282 kinds of medicines were used. The total frequency of usage was 714 times. The drug names and frequency of usage which were equal to or higher than five

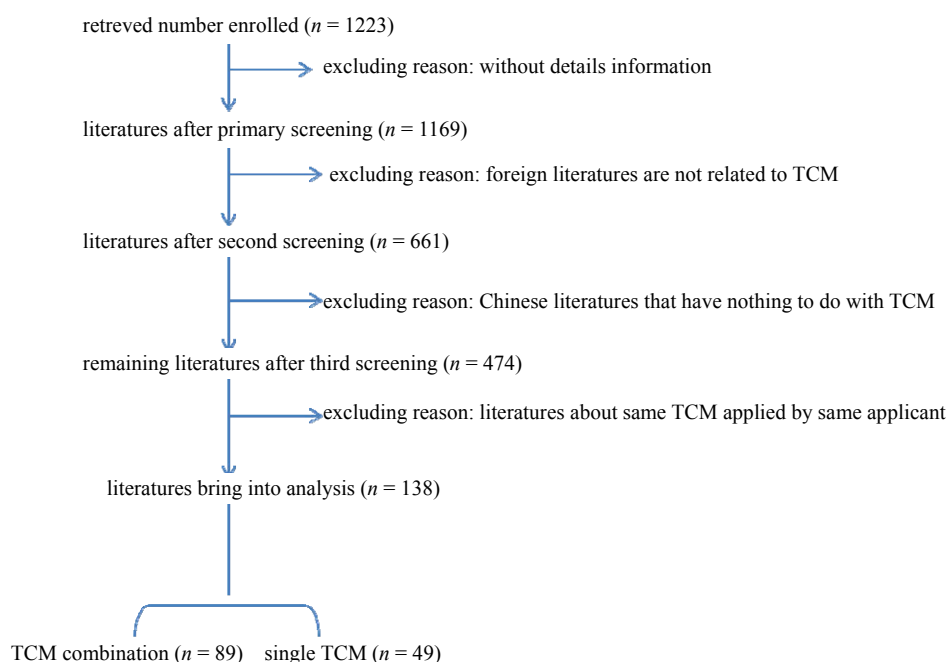


Figure 1 Literatures screening procedure and results

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