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板蓝根染料制作

Preparation of isatis root dye

具体的制作方法，很难在这里给你轻松解答，就是说了，你也未必能够真正掌握。明代科学家宋应星在《天工开物》中对制靛的方法有详尽描述，现代制靛方法并未超出此书内容：凡造淀，叶者茎多者入窖，少者入桶与缸。水浸七日，其汁自来。每水浆一石下石灰五升，搅冲数十下，淀信即结。水性定时，淀沉于底。

It's hard to give you an easy answer to the specific production method here, that is, you may not be able to really master it. Song Yingxing, a scientist in the Ming Dynasty, described in detail the method of making indigo in his *Exploitation of the Works of Nature*. The modern method of making indigo did not go beyond the content of this book: those who make starches and leaves have more stems in the cellar, and those who make leaves in barrels and vats. After soaking in water for seven days, the juice comes from. Each slurry of lime under a stone five liters, stirring dozens of times, the starch is formed. When it is aqueous, it precipitates at the bottom.





实际上，最早出现于医药典籍中的只有“蓝”这一个字而已，而这个“蓝”指的就是靛蓝。《说文解字》中的描述是：“蓝，染青草也。”当时的靛蓝，主要是衣服的染料。至于名字逐渐演变成“靛蓝”，则很可能是为了区别其他的蓝色染料植物，例如上面提到的板蓝。而加的这个“靛”字，则是为了描述它的特征。

In fact, only the word "blue" first appeared in medical classics, and the word "blue" refers to isatis blue. The description in Shuowen Jiezi is: "Blue, dyed grass." At that time, the blue is mainly the dye of clothes. As for the gradual evolution of the name into "wool blue", it is likely to distinguish other blue dye plants, such as the above-mentioned isatis. The word "isatsu" is added to describe its characteristics.



靛蓝的颜色

Color of indigo



不论是板蓝、菘蓝还是蓼蓝，植株本身都是正常的绿色，即便是扯开它们的叶片，渗出来的汁液也是透明的，蓝从何来？

Whether it is isatis blue, isatis blue or polygonum blue, the plants themselves are normal green, even if their leaves are pulled apart, the sap seeping out is transparent. Where does the blue come from?

这三种植物来自三个不同的科，可以说没有任何亲缘关系，不过有趣的是，它们含有同样的化学物质——靛苷。靛苷由吲哚和糖基组成，是一种可溶于水的无色透明化合物，因此我们从板蓝的汁液中看不到任何蓝色的痕迹。

The three plants come from three different families and have no kinship, but interestingly they contain the same chemical, indigo. Indigosin is composed of indole and glycosyl, a colorless and transparent compound soluble in water, so we can't see any blue traces in the sap of isatis.





为了得到蓝色染料，必须要经过下面几个步骤的处理：

In order to obtain a blue dye, the following steps must be taken:

首先，要把这些植物放入水中浸泡。因为可溶于水，靛苷会从细胞中缓慢地释放出来，同时靛苷上的糖基会被逐渐水解，留下单独的 3-羟基吲哚。而那些被释放出来的糖会被微生物转化成乳酸，逐步提高发酵池的酸度，进而促使更多的 3-羟基吲哚从糖的怀抱中挣脱出来。

First, soak the plants in water. Because it is soluble in water, indigo is slowly released from the cells, and the glycosyl groups on indigo are gradually hydrolyzed, leaving 3-hydroxyindole alone. The released sugars are converted by microorganisms into lactic acid, which gradually increases the acidity of the fermentation tank and encourages more 3-hydroxyindoles to break free from the embrace of sugar.





当靛苷水解的工作告一段落后，石灰就该出场了。石灰将会调节溶液的酸碱度，促使 3-羟基吲哚被氧化为 3-吲哚酮，此时，刚刚独立没多久的吲哚基团将再度走向联合，两个分子的 3-吲哚酮会发生缩合反应，形成靛蓝。而此时我们就会发现：蓝色的沉淀物出现了。

When the work of indigosin hydrolysis is over, the lime should leave. Lime will adjust the pH of the solution, causing 3-hydroxyindole to be oxidized to 3-indolone. At this time, the indole groups that have just been independent will be combined again, and the 3-indolone of the two molecules will undergo condensation reaction to form indigo. At this time, we will find that the blue sediment appears.

不过，我们如果要使用这些染料的话，并不是简单地把沉淀好的靛蓝涂抹到衣物上那么简单，而是必须利用米泔水，酒糟等原料对它进行进行再次发酵。再这样得条件下，靛蓝会发生还原反应，变成无色的靛白。但是和靛蓝一样，靛白还是很难溶解在水中，于是，再次出场的石灰与靛白发生反应，让后者变成可以溶解在水中的靛白盐——直到此时，染色剂才算是真正做好。

But if we want to use these dyes, it's not as easy to simply spread the precipitated indigo on clothes, but it must be re-fermented with raw materials such as rice swill and wine grains. Under such conditions, indigo will undergo a reduction reaction and become colorless indigo. But like indigo, indigo is still difficult to dissolve in water, so the lime that comes out again reacts with indigo, turning it into an indigo salt that can dissolve in water – until then, the stain is really good.



把需要染色的衣物放在准备好的染色剂中，等靛白充分地进入纤维就可以拿去晾晒了。在晾晒过程中，靛白再次被氧化，变回靛蓝，织物也就如此被赋予了稳重的蓝色。

Put the clothes to be dyed in the prepared colorant, and wait for the indigo to fully enter the fiber before drying. In the drying process, indigo is oxidized again and turned back into indigo, so the fabric is given a steady blue color.

有什么植物是可以拿来当扎染的染料的

What plants can be used as tie-dyes?

植物染料通常有如下几种：蓝色染料——靛蓝；红色染料——茜草、红花、苏枋（阳媒染）；黄色染料——槐花、姜黄、栀子、黄檗；紫色染料——紫草、紫苏；棕褐染料——薯蓣；黑色染料——五倍子、苏木（单宁铁媒染）

There are usually the following plant dyes: blue dyes-indigo; red dyes-rubia, safflower, suzuka (positive mordant); yellow dyes-sophora, turmeric, gardenia, berberine; purple dyes-purple grass, perilla; tan dyes-scolymus; black dyes-quintuplet, hematoxylum (tannin iron mordant)





板蓝根，又名靛青根。味苦，具有清热解毒、预防感冒、利咽之功效。板蓝根作为染料的历史久于入药。“青出于蓝而胜于蓝”中的那个“蓝”就来自靛蓝，而靛蓝所用蓝草之一就是板蓝根。在云贵高原的白族妇女手中，板蓝根不仅仅是一味清热解毒的中药，更是一门世代传承的艺术。

Isatidis root, also known as indigo root. It tastes bitter and has the effects of clearing heat and detoxification, preventing colds, and relieving sore throat. Isatidis root has a long history as a dye as a medicine. The "blue" in "green out of blue is better than blue" comes from indigo, and one of the blue grasses used in indigo is isatis root. In the hands of Bai women on the Yunnan-Guizhou Plateau, isatis root is not only a traditional Chinese medicine for clearing heat and detoxifying, but also an art inherited from generation to generation.

这门艺术就是扎染。板蓝根就是作为白族手工扎染的染料之一。

This art is tie-dye. Isatidis root is one of the dyes for hand-dyeing of Bai people.





扎染古称扎缬、绞缬(xié)、夹缬和染缬，是中国民间传统而独特的染色工艺。织物在染色时部分结扎起来使之不能着色的一种染色方法，中国传统的手工染色技术之一。绞缬(扎染)、蜡缬和镂空印花被称为我国古代三大印花技艺。那么我们就来了解一下扎染吧~

Tie-dyeing, known as zhaxie, jianxie (xié), jiaxie and dyeing, is a traditional and unique dyeing process in China. A dyeing method in which fabrics are partially ligated during dyeing to prevent dyeing. It is one of the traditional manual dyeing techniques in China. Jiaoxiu (tie-dyeing), Xiuxiu and hollow printing are known as the three major printing techniques in ancient China. Let's learn about tie-dye~

从历史说起

In history,

据《实仪录》载：“汉年间有染缬色法，不知何人所造。”从《南诏国传》和《张胜温画卷》中人物的衣着服饰来看，早在一千多年前白族先民就懂得了“染采纹秀”。特别在盛唐时期，扎染已在白族地区成为民间时尚，扎染制品也成了向皇帝进献的贡品，贵族穿绞缬的服饰成为时尚。北宋时期因扎染制作复杂，耗费大量人工，朝廷曾一度明令禁止，从而导致扎染工艺衰落，以至消失。但西南边陲的少数民族仍保留这一古老的技艺。除中国外，印度、日本、柬埔寨、泰国、印度尼西亚、马来西亚等国也有扎染手工艺。20 世纪 70 年代，扎染成为流行的手工艺，广泛应用于服装、领带、壁挂等。

According to the Records of Real Instruments, "In the Han Dynasty, there was a method of dyeing indices, which was not made by anyone." According to the clothes of the figures in the Biography of Nanzhao Kingdom and Zhang Shengwen's Paintings, the Bai ancestors knew the "Dyeing and Patterns Show" more than a thousand years ago. Especially in the prosperous Tang Dynasty, tie-dye has become a folk fashion in the Bai area, tie-dye products have also become a tribute to the emperor, and the costume of the nobles wearing Jiaoxiao has become



a fashion. In the Northern Song Dynasty, tie-dyeing was complicated and cost a lot of labor. The imperial court once explicitly banned it, resulting in the decline and even disappearance of tie-dyeing technology. But the ethnic minorities in the southwest border still retain this ancient skill. In addition to China, India, Japan, Cambodia, Thailand, Indonesia, Malaysia and other countries also have tie-dye crafts. In the 1970s, tie-dye became a popular handicraft widely used in clothing, tie, wall hanging, etc.

扎染用的布料过去完全采用白族自家手工织的较粗的白棉土布，现在土布已较少，主要用工业机织生白布、包装布等布料，吸水性强，质地柔软。而最主要的染料就是文章开头提到的板蓝根，还有来自苍山上生长的寥蓝、艾蒿等天然植物共同制作成的蓝靛溶液。每年三四月间收割下来，先将之泡出水，注到木制的大染缸里，掺一些石灰或工业碱，就可以用来染布。

In the past, the cloth used for tie-dyeing was completely coarse white cotton cloth woven by the Bai people's own hands. Nowadays, there are fewer soil cloths. Industrial woven raw white cloth, packaging cloth and other cloths are mainly used, with strong water absorption and soft texture. The most important dye is the isatis root mentioned at the beginning of the article, as well as the indigo solution made by natural plants such as lime blue and artemisia argyi growing on Mount Cangshan. It is harvested in March and April every year. First, it is soaked in water and injected into a large wooden dyeing vat, mixed with some lime or industrial alkali, and then used for dyeing cloth.



如何制作呢？

How to make it?

扎染的制作方法别具一格，旧籍生动地描述了古人制作扎染的工艺过程：“‘撮’撮采线结之，而后染色。即染，则解其结，凡结处皆原色，余则入染矣，其色斑斓。”扎染的制作过程可以分为五部分：一扎二染三拆四漂五晾，每一个步骤都真正保留了纯朴和完全的手工制作，可以说每一件扎染都倾注了民间匠人的艺术匠心。其中主要有扎花、浸染两道工序，技术关键是绞扎手法和染色技艺。

Tie-dyeing is made in a unique way. The old book vividly describes the process of tie-dyeing made by the ancients: "Pick up the knots and then dye them." That is to say, dyeing can resolve the knots. All knots are in the original color, and the rest are dyed. It is colorful." The process of tie-dyeing can be divided into five parts: one tie-dyeing, two dyeing, three unpacking, four bleaching and five airing. Each step truly retains the simplicity and completeness of handmade production. It can be said that each piece of tie-dyeing devotes the art and craftsmanship of folk craftsmen. Among them, there are mainly two processes: twisting and immersion dyeing, and the key techniques are twisting and dyeing.

{扎花}

{Zhahua}

扎花，原名扎疙瘩，即在布料选好后，按花纹图案要求，在布料上分别使用撮皱、折叠、翻卷、挤揪等方法，使之成为一定形状，然后用针线一针一针地缝合或缠扎，将其扎紧缝严，让布料变成一串串“疙瘩”。

The original name is knots, that is, after the fabric is selected, according to the requirements of the pattern pattern, the fabric is wrinkled, folded, turned over, squeezed and other methods



are used to make it into a certain shape, and then stitched or wrapped with needles and threads one by one to tighten it and make the fabric become a string of "knots".

其目的是对织物扎结部分起到防染作用，使被扎结部分保持原色，而未被扎结部分均匀受染。从而形成深浅不均、层次丰富的色晕和皱印。织物被扎的愈紧、愈牢、防染效果愈好。

The purpose is to prevent dyeing of the knotted part of the fabric, so that the knotted part remains the original color while the unknotted part is evenly dyed. Thus, uneven depth and rich layers of halos and wrinkles are formed. The tighter and firmer the fabric is tied, the better the anti-dyeing effect is.

扎花是以缝为主、缝扎结合的手工扎花方法，具有表现范围广泛、刻画细腻、变幻无穷的特点。

Flower tying is a hand-made method of sewing and tying, which has the characteristics of wide range of expression, delicate description and infinite change.

{浸染}

{Dissemination}

即将扎好”疙瘩”的布料先用清水浸泡一下，再放入染缸里，或浸泡冷染，或加温煮热染，经一定时间后捞出晾干，然后再将布料放入染缸浸染。如此反复浸染，每浸一次色深一层，即”青出于蓝”。缝了线的部分，因染料浸染不到，自然成了好看的花纹图案，又因为人们在缝扎时针脚不一、染料浸染的程度不一，带有一定的随意性，染出的成品很少一模一样，其艺术意味也就多了一些。



The cloth that is about to be tied with "knots" is soaked in clean water first, and then put into a dyeing vat, or soaked in cold dyeing, or heated and boiled for hot dyeing. After a certain period of time, it is taken out and dried, and then the cloth is put into a dyeing vat for dyeing. So repeated immersion, each immersion of a dark layer, that is, "blue out of blue." The stitched part naturally becomes a beautiful pattern because the dye cannot be impregnated, and because people stitch differently when stitching, the degree of impregnation of dye is different, with a certain randomness, the dye products are rarely identical, and its artistic meaning is more.

经过浸染的布料此时需要将线头一一拆除，并仔细的漂泊与晾晒，就得到了最终的成品。

The dyed fabric needs to be removed one by one and carefully bleached and dried to obtain the final product.

扎染具有表现范围广泛、刻画细腻、变幻无穷的特点：浸染采用手工反复浸染工艺，形成以花形为中心，变幻玄妙的多层次晕纹，凝重素雅，古朴雅致。

Tie-dye is characterized by a wide range of expression, delicate depiction and infinite change: manual repeated immersion dyeing process is adopted to form a multi-layered halo pattern centered on the flower shape and changing and mysterious, which is solemn and elegant, and simple and elegant.

制作好的扎染，最常见的用途之一是服装布料。大理小伙子的传统服装——白族马褂，便是用扎染制作而成。



One of the most common uses of tie-dyed fabrics is clothing. The traditional costume of the young man in Dali, the Bai man's coat, is made of tie-dye.

扎染用染色方法达到了印花的效果，而且由于手工扎法无重现性，所以世上不可能有完全相同的扎染饰品，这就是扎染的独特魅力。它显示出浓郁的民间艺术风格，1000多种纹样是千百年来历史文化的缩影，折射出人民的民情风俗与审美情趣，与各种工艺手段一起构成富有魅力的织染文化。

Tie dyeing achieves the effect of printing with dyeing method, and because of the non-reproducibility of hand tie, it is impossible to have exactly the same tie dye accessories in the world, which is the unique charm of tie dyeing. It shows a rich folk art style. More than 1,000 patterns are the epitome of history and culture for thousands of years, reflecting the folk customs and aesthetic taste of the people, and forming a charming weaving and dyeing culture together with various crafts.