1. What is Chengdu King-tiger® Water-solubility Cycloastragenol

Cycloastragenol is a telomerase activator with the high activity, which can delay the shortening of telomere by increasing the activity of telomerase. Therefore, Cycloastragenol is considered to have the effect of anti-aging\[1\]. Cycloastragenol is a tetracyclic triterpenoid, and its solubility in water is extremely low, which is only 0.03mg/ml \[2\] (< 1:10000). As a result, the bioavailability of Cycloastragenol is low because of the poor water-solubility. Adopting an independently developed preparation process to produce Cycloastragenol, Chengdu King-tiger Pharm-chem. Tech. Co., Ltd. gets the Cycloastragenol with a significantly higher solubility in water than common Cycloastragenol, The solubility in water of this Cycloastragenol increases more than 300 times, reaching 10mg / ml (> 1:100). We call this kind of Cycloastragenol as water-solubility Cycloastragenol.

2. Photo comparison of Chengdu King-tiger® Water-solubility Cycloastragenol and common Cycloastragenol

Solutions with a concentration of 50mg/ml (the concentration of
Cycloastragenol is 5mg/ml) were prepared respectively from the common Cycloastragenol 10% and Chengdu King-tiger®. Water-solubility Cycloastragenol 10%. Compare the two solutions, photos as below.

In Figure 1, the left side is the solution of common Cycloastragenol 10% with concentration 50mg / ml (its Cycloastragenol concentration is 5mg / ml). The solution is turbid and completely block the letters in the background.

The right side of Figure 1 is the solution of Chengdu King-tiger® Water-solubility Cycloastragenol 10% with concentration 50mg / ml (its Cycloastragenol concentration is 5mg / ml). The solution is clear and
Comparing the clarity of the two solutions, Chengdu King-tiger® Water-solubility Cycloastragenol (10%) is significantly clearer than the common Cycloastragenol (10%).

3. Comparison of the dissolution curves of common Cycloastragenol and Chengdu King-tiger® Water-solubility Cycloastragenol

Draw the dissolution curves of raw materials of common Cycloastragenol (content of Cycloastragenol: 10%) and Chengdu King-tiger® Water-solubility Cycloastragenol (content of Cycloastragenol: 10%) in artificial gastric juice (PH=1.2) (see Figure 2), it can be seen that there is a significant difference in dissolution between the two products. The Chengdu King-tiger® Water-solubility Cycloastragenol is dissolved quickly and completely, and at the time point of 15 minutes its dissolution rate is already above 95%, while the rate of the common Cycloastragenol is only 6% at the time point of 45 minutes.
4. Bioavailability of Cycloastragenol

The lipophilicity of Cycloastragenol is good, but its solubility in water is low, as a consequence, it is not easily absorbed by human body by oral administration due to the limit of solubility. Moreover, Cycloastragenol is widely metabolized in liver microsomes after being absorbed by human body. After 30 minutes of oral administration, the residual amounts of common Cycloastragenol is only 8.2% of the initial amount. The low solubility and extensive first-pass effect greatly restrict the oral bioavailability of the product.
The solubility of Chengdu King-tiger® Water-solubility Cycloastragenol is much higher than that of common Cycloastragenol, because the dissolution rate reaches 95% within 15 minutes (see Figure 2). The Water-solubility Cycloastragenol can be rapidly dissolved in the gastrointestinal tract and quickly absorbed into the blood circulation by human body, which greatly improves the oral bioavailability of Cycloastragenol.

5. Summary of the characteristics of Chengdu King-tiger®

Water-solubility Cycloastragenol

The solubility clarity and dissolution in water of Chengdu King-tiger® Water-solubility Cycloastragenol are significantly higher than those of common Cycloastragenol. In addition, the bioavailability of Chengdu King-tiger® Water-solubility Cycloastragenol in human body is also higher than that of common Cycloastragenol.

References
