

### **Czech Republic The Home of the Worlds Finest Aroma Hops**

Saaz fine aroma hops

Hops and hop products influence directly the most of beer characteristics such as taste, pleasantness of bitterness and stability. Czech SAAZ fine aroma hops play a unique role as the true character of a superior beer can only be achieved by using nothing less than the highest quality of hops.

Saaz fine aroma hops from the Czech Republic remain the undeniable world standard for excellence.

### **Hop polyphenols**

High sensorial quality of beer is in numerous aspects directly connected to the quality of hops and hop products used for their production. In this sense the Saaz fine aroma hops play traditionally an important role. The current beer technology enables production of beer with the highest biological and colloid stability. What still remains unsolved is the relatively short sensorial stability of beer. Polyphenols are substances directly connected to the stability of beer. They come into beer from barley, i.e. malt, hops and hop products as natural ingredients which influence immensely the sensorial character as well as overall shelf-life.

Natural polyphenols in beer that come from hops and hop products show a great antioxidant effect which demonstrate itself predominantly in inhibition of oxidation changes of lipid forms and thus stopping the ageing processes of beer. A moderate beer consumption is one of natural sources of antioxidants and substances with proved anti-sclerotic, anti-carcinogenic, anti-microbiological and anti-inflammatory effects.

A higher content of polyphenols in Saaz fine aroma hops contributes to their extraordinary high brewing value.

### **Hop resins and essential hop-oils**

At present hop resins and essential hop-oils are considered to be the most valuable components from the point of view of the brewing process. Saaz hops are the most important representative of fine aroma hops and are considered as having a high-quality hop standard. The basic characteristic of Saaz hops is the delicious hop aroma given to beer without secondary disagreeable fragrance and smell.

### **Hop resins**

From the point of bitterness hop resins are the most important group of natural components. Hop resins are formed by a number of chemically resembling compounds from which alpha-bitter acids are the most important for beer bitterness.

Fine Saaz aroma hops are typical by their ratio of alpha-bitter acids to beta-bitter acids which is

usually 1:1.5

Hop alpha bitter acids are a mixture of several analogues of humulone. In natural mixtures of alpha-bitter acids humulone and cohumulone are prevailing according to variety, growing locality and a grade of maturity. Saaz hops have cohumulone contents of up to 28%. Genetically different varieties, for example English green-bine-hops have cohumulone contents as high as 40%. Lower cohumulone content is considered to be a guarantee of a more delicious bitterness because iso-cohumulone is probably a carrier of ruder bitterness with respect to different physical-chemical properties from the other two analogues. It can also be said that from the point of view of the structure of hop bitter acids, fine aroma hops with higher contents of beta-bitter acids give beer a more delicate bitterness. It is especially important for brewing Czech type beer whose typical representative is Pilsner Urquell.

### **Essential hop oils**

The second and no less important group of hop components is essential hop oils. Fresh hops contain 0,1-0,5% of essential oils. According to latest information hop oils are a mixture of several hundred components predominantly of terpenic character. Essential oils are a carrier of hop aroma whose quality depends above all on the genetic origin of variety, grade of maturity, growing district and other factors. Approximately three quarters of essential hop oils form hydrocarbons, the best known of which are myrcene, humulene, caryophyllene and farnesene belonging to a group of monoterpenes and sesquiterpenes. Czech hops are typical in their content of farnesene.

Essential oils held in hops or hop products applied during the brewing process, give wort and beer the typical hop aroma and taste. This combination of hop taste and hop aroma is usually called "hop character".

**The excellent feature of fine Saaz aroma hops is the well-balanced and harmonious content of individual components giving beer a typical and pure hop aroma.**

The fine aroma of Saaz hops enables their use for various alternative ways of hopping. The required intensity of bitterness and fine hop aroma can be reached by combining of the first portion of high alpha hops at the beginning of brewing and a second portion of fine aroma hops at the end of brewing process. This way of hopping is today considered as the most suitable for making Czech type beers.