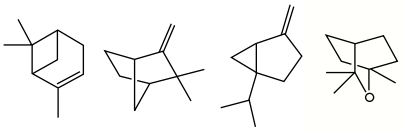
THE CHEMISTRY OF JUNIPER AND QUININE

The Chemistry of Juniper and Quinine, or more loosely referred to as Gin and Tonic answers why someone may like a gin & tonic, but dislike the individual tastes of gin and of tonic. There is a reason for this, and it all comes down to what gin and tonic each look like at the molecular level.

JUNIPER

Gin is typically a neutral alcohol that has been redistilled with juniper berries and other natural botanicals. While the alcohol itself lacks much flavour (a bit like vodka), the primary flavours attributed to gin are those from the juniper berries. During the distillation, the alcohol is able to draw several oils - flavours - out of the cells in the berries. Some of the primary flavour oils look like this:

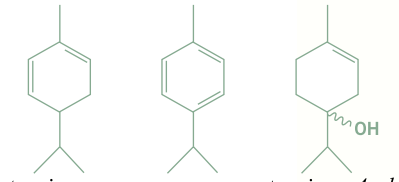
The essential oils of the juniper berry.



pinene *camphene* *sabinene* *cineole*

(Top) From left to right

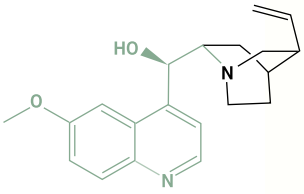
(Bottom) From left to right:



terpinene *cymene* *terpinen-4-ol*

The names here are not important, but the structures are. These structures are the molecules that give juniper, and gin, their distinctive flavours and aromas.

THE CHEMICAL STRUCTURE OF QUININE IS AS FOLLOWS:



Quinine is a basic compound. (Mixtures of water and quinine have a high pH.) Humans experience basic liquids as having a bitter taste.

QUININE

Tonic water is flavored with quinine. Quinine tastes bitter. It is a base (the opposite of an acid) and was used to treat malaria from the 1600s all the way through the 1940s. It was the British living in India who first mixed quinine tonic with gin to make tonic more palatable.

GIN & TONIC

When gin and tonic are mixed, quinine and the flavour molecules from the juniper berries combine to make a perceived flavour that is different than just the sum of the individual parts. The molecules from the gin and the tonic can do this because they look alike; the molecules are similar. Molecules that are alike are attracted to one another. Molecules that look nothing alike tend to stay away from each other. A bit like water and oil.

Gin and tonics operate on this same principle, only in reverse. The difference is that the flavour molecules from the gin and tonic are attracted to one another. They are similar. The parts of these molecules that look alike (black matching with black and green matching with green) are attracted to one another.

When they are mixed together in a gin and tonic, the molecules come together to create an aggregate. In the aggregate a quinine molecule is nestled up closely to one of the juniper molecules. These aggregates create a taste sensation that is completely different from just gin and just tonic on their own.

SIX DOGS DISTILLERY,
BOSCHKLOOF FARM, DE WET, 6853
www.sixdogs.co.za

PASSIONATELY CRAFTED, ONE BATCH AT A TIME