

# Synthesis and Application of Feuerzangenbowle: A facile Route for the Preparation of this Highly Bioactive Liquid

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## Supplementary Material

### Proofed *Feuerzangenbowle*-Operators



**Figure 1:** Team-picture showing the boss (bottom right), operator (back row No. 10 from right to left), co-author (standing front row No. 3 from right to left), consumers and probing staff (rest).

### List of Ingredients

- 3-4 L red wine (NO Bordeaux !!)
- 3 oranges (carefully chosen)
- 1-2 cinnamon sticks (commercially available)
- 3-5 cloves plugged in orange and/or lemon peel (never eat one of them)
- 1 sugar loaf (approx. 250 g)
- 500 mL Rum (min. 50 vol%)



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**Introduction:** In recent years an old German tradition has experienced a revival of tremendous extend. In the late month of each year, when the weather tends to be cold and wet, German students come together in groups up to twenty people and prepare *Feuerzangenbowle*.<sup>1</sup> This drink, since many decades, is known to reveal certain bioactive response. Commonly the quite unusual amount of short chain alcohols (namely: hydroxyethane) is made responsible for these effects. Recently we became interested in this project and were able to show that apart from already published recipes the synthesis together with the order of events strongly influences the outcome of a *Feuerzangenbowlen-Party-Atmosphere*.<sup>2</sup> Herein we report a elaborate procedure for the preparation of *Feuerzangenbowle*.

**Experimental:** 3-4 L of french red wine<sup>3</sup> is heated gently in a 5 L copper or glass kettle (more heat will result in a significant decrease of the FPA-value). Meanwhile 3 cautiously selected oranges are chopped into small pieces. After heating the wine close below the boiling point one or two cinnamon sticks and the chopped oranges are added. 3 to 5 cloves are plugged into a piece of orange and/or lemon peel, which are also added to the reaction mixture. A sugar loaf is placed upon a professional *Feuerzange*, which has been placed safely on top of the kettle containing the reaction mixture. At that time the kettle is placed in the middle of a table, so that

everybody is able to follow the ceremony. The light should be dimmed to not more than 200 lux. Rum (at least 50 vol%) is cautiously poured over the sugar loaf and then is lighted. Keep the flames burning by ladling more rum (in total 500 mL) on the sugar loaf, until the sugar has completely melted and dripped into the reaction mixture. Now the *Feuerzange* is placed in the vessel to guarantee caramel flavour. This yields in approx. 5 L of warm ready-to-serve liquid which can easily be identified as *Feuerzangenbowle*.

**Results and discussion:** Sharing the experiences of the ceremony together with some friends increases the FPA-value by the factor which is equivalent to half of the number of people being present. In sharp contrast to that a significant drop of the FPA is observed in case the operator fails in keeping the fire burning until the last bit of sugar has melted.<sup>4</sup> The reproducibility generally is checked by an immediate second run following the above procedure.

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<sup>1</sup> For further informations see: H. Rühmann in *Die Feuerzangenbowle*, movie, 1944.

<sup>2</sup> Hereafter referred to as FPA-value.

<sup>3</sup> Not too expensive; save the good bordeaux to drink it pure.

<sup>4</sup> It is said that bad luck will follow for the next seven years, if the fire goes out.