

Tradition in Competition to Food Safety, or “Archaic Science” against Brand Name Products

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Traditionally, the homemade beverages or concentrated alcoholic drinks are produced by distilling different types of organic raw materials, most of them from biological sources as cereals grains, fruits and juices (these being the starch sources) [1] but even from wood sources. All these sources produce both ethanol and methanol in different proportions, by fermentation process. The serious health risk of methanol poisoning becomes higher when using wood sources [2].

The European and national regulations for Food Safety do specify strict requirements for producing alcohol drinks, and here are the brand name products, but homemade beverages with over 30% ethanol obtained by repeated distillation in manufactured copper vessels will contain small amounts of methanol. In case that fruit juice is used this amount reaches about 0.2-0.3%, however from fruit pulp the amount may rise to 0.6-0.9% [3].

As the metabolism of methanol is much slower than the one of ethanol, the most common effects caused by exposure to methanol by drinking alcohol beverages become apparent only after several hours.

After methanol ingestion the health symptoms observed begin with central nervous system by slowing down the heart and breathing, then liver metabolizes methanol to formic acid affecting the optic nerve easily to blindness by inhibition of cytochrome oxidase [4], and finally reduces oxygen use by mitochondria, produces hypoxia and then death of the affected tissues [5,6]. The limits of poisoning with methanol are low, and even inhalation or skin absorption can easily reach dangerous levels. For instance, 10 mL may produce blindness and 30 mL is potentially lethal [4].

Large areas from different European countries still have domestic alcohol that is produced not necessarily as commercialized beverages but for self use at home. The Transylvania region from Romania is well known and recognized for the popular liquor made from full plums entitled “tui-ca”, highly concentrated alcohol drink obtained after two

successive stages of distillation. Obtaining of this drink has to respect the “procedure” and the process is learned and inherited from ancestors, generation by generation, who used to improve it over the centuries to the actual “technology”. The first group of factors that were corrected during the time concerned the raw biological materials (especially cereals and fruits) and their basic fermentation duration until the distillation is applied. The second group of factors have been “optimized” in a very long period of time, and they concerned volume and materials nature of the vessels used (copper is the most common now not only for homemade beverages but also for industrial beer obtaining), but in the same time the energy and temperature for the first and also for the second stage of distillation process. Last factors that were introduced in preparation of concentrated alcohol drinks have to consider removing the “head” and “tail” of the distilled products in order to reduce the byproducts and together with them the content of methanol. All these aspects show the development in time of the process for obtaining homemade concentrated alcohol drinks and demonstrates the scientific approach over the generations, thus, the term of “Archaic Science” in this matter is the most appropriate one. Unfortunately, the fact that people do not know correctly or accurately to reproduce perfectly the procedure leads frequent to methanol intoxication.

References

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