

TEA CIDER - A POTENTIAL WINNER

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Tea is drunk in many different forms the world over. It is most popular as the conventional beverage taken alone or with milk and sugar; but green tea, lemon tea, orange tea and mint tea based on a variety of 'instants' are also now firmly established, despite uncertain beginnings, largely originating in the kitchens of enterprising housewives. The various kinds of tea are consumed at a range of temperature from piping hot to ice cold. Tea cider is not entirely new—it has been brewed for some decades, but its large-scale consumption has not been exploited for a variety of reasons. Today, however, there is a revival of interest in it, and the Tea Research Institute has had enquiries from interested parties for information on its production. This article summarizes the available information on the subject. It must also be stated that several variations of the end product are possible and that simple experiments could possibly lead to different, and even more attractive end products than those which can be obtained by the methods described here.

The 'ferment' and its action

The essential process involved in the production of any alcoholic beverage is the breakdown or fermentation of a carbohydrate, in this case sugar, to carbon-dioxide and alcohol. Sugar is, therefore, the base from which the alcohol is derived. The fermentation is carried out as a result of the utilization of the sugar by the fermenting organism complex or ferment. The ferment is in fact alive and consists of more than one organism. Gadd (1933) states that only two organisms are of importance—a yeast, *Saccharomyces ludwigii* and a bacillus, *Bacterium xylinum*. It is however, possible that other species of *Saccharomyces* may also be responsible for the production of a satisfactory brew. The tea is used largely as a flavouring agent but its constituents are, in all probability, utilized by the ferment for its growth, because all its growth requirements cannot be obtained from the sugar alone. The ferment must be grown in sufficient quantity and kept alive by anyone wishing to produce cider on a large scale. This does not present any great difficulty.

The Tea Research Institute is in a position to supply a sample of the ferment to those interested. The ferment is grown on the same medium as is used for the preparation of the cider. This medium can support the growth of unwanted micro-organisms as contaminants. In order to prevent this, we must ensure that all vessels used are scrupulously clean. It would be necessary to have a wide-mouthed vessel for growing the ferment because a vessel where the liquid has a large surface area is advantageous for the activity of the ferment. The ratio of the volume of the inoculum (or the piece of ferment one starts with) to the volume of the sugar/tea extract should be substantial. In other words, one must not have a small piece of inoculum in a large volume of sugar/tea extract, but it must be the other way round where the volume of inoculum must be large in proportion to the volume of liquid used. Figure 1 shows the approximate quantity of inoculum with which one might start off. It would help if several cultures of the inoculum are maintained, so that even if some are contaminated, one will not lose the ferment altogether.

In the event of the ferment being contaminated it should be washed in running water and the contaminant gently rubbed off with the finger. It should then be rinsed in vinegar and placed in a fresh sugar/tea extract. In order to revive old stocks of the ferment, two tablespoons of vinegar should be added to four pints of fresh sugar/tea extract, and the ferment should then be floated in it.

Contaminants can be distinguished by the fact that they are fluffy filamentous masses of fungus growing over the ferment in patches, which may turn green or bluish green when they begin to sporulate. If one encounters persistent contamination, it may help to transfer the cleaned ferment to a larger vessel.

Preparation of cider and vinegar

Ingredients

- 1—Sugar (refined white variety)
- 2—Black tea
- 3—Boiled water
- 4—The ferment (obtained from the Tea Research Institute)
- 5—Vinegar (needed only to reactivate an old or weak ferment and to rid the ferment of persistent contamination).

Utensils & materials

- 1—Glass vessels with wide mouths
- 2—Pieces of cork which can float on the surface of the liquid in the glass vessels
- 3—Double thickness linen (table napkin) for filtering
- 4—Bottles which can withstand pressure and with screw caps or tight-fitting clipped stoppers—Champagne bottles are suitable.

NB—Metal containers are unsatisfactory and should never be used because the acids formed may react with the metal. Plastic vessels are also not quite satisfactory.

Procedure for the preparation of tea cider

- 1—Infuse $\frac{1}{2}$ - 1 oz of black tea in 4 pints of freshly boiled water for 3 to 5 min.
- 2—Strain the infusion through a tea strainer
- 3—Add 8 - 12 oz of sugar into the filtered infusion before it has cooled
- 4—Keep the sugared tea covered and let it cool to room temperature
- 5—Float the ferment on the sugared tea if necessary using a clean disc of cork under the ferment. The vessel must be kept covered but not air-tight or hermetically sealed.
- 6—The fermentation should proceed for 2 to 5 days depending on the temperature. The higher the room temperature, the faster will be the fermentation. The brew should not be artificially heated. The period of 2 to 5 days is given merely as a guide; the cider should be tasted periodically in order to fix the time at which the ferment should be removed.
- 7—Remove the ferment
- 8—Filter through a double layer of linen (or a folded linen table napkin)
- 9—Fill the bottles to the brim and stopper the bottles securely. Keep in a cool place.
- 10—Consume the cider after a few days. The cider may however keep for one or two months.

NB—See notes below before starting the preparation of tea cider.

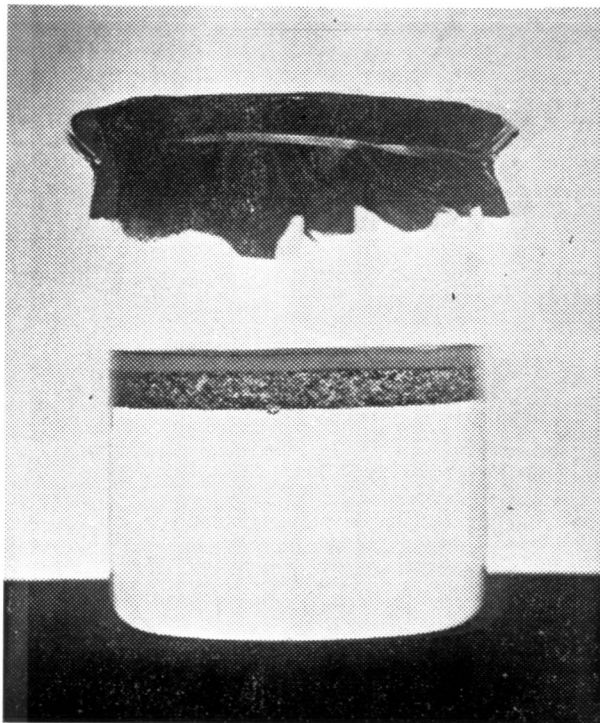


FIGURE 1 — *Ferment inoculum floating on a disc of cork*

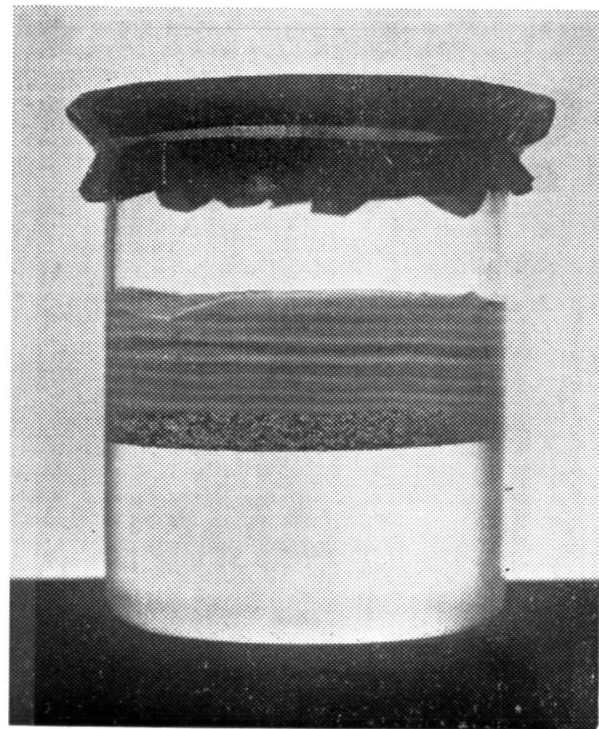


FIGURE 2 — *Thickened ferment composed of easily separable layers*

Procedure for the preparation of vinegar

Follow the same procedure as given in steps 1 to 7 for cider. Do not bottle, but instead let the brew stand in the vessel for about a month. Strain the vinegar, boil it and then bottle it.

Important points to be noted

After obtaining the piece of ferment from the TRI, it is desirable to let the ferment grow and cover the surface of the sugar/tea extract completely in the vessel that is to be used for the preparation of tea cider, before embarking on the production of tea cider itself. This can very easily be accomplished by letting the ferment stand in the sugar/tea extract for a period of two to four weeks. The resulting brew may be used for the production of tea vinegar if desired.

After the ferment is removed from the liquor at stage seven in the production of tea cider, *it must immediately be transferred to a fresh sugar/tea extract*. By repeating the steps followed earlier, more tea cider can be prepared. If, however, more tea cider is not required just yet, it would be preferable to let the ferment stand in the fresh sugar/tea extract for about four to six weeks during which time the ferment thickens considerably and the liquor becomes converted to vinegar.

The thickened ferment will be composed of easily separable superposed layers (Figure 2). The layers can be peeled off one from another and each can be used as independent units for the production of fresh tea cider or tea vinegar. If the ferment is allowed to stand in a sugar/tea extract for too long (over six weeks), there is a risk of the ferment becoming sluggish needing reactivation with vinegar. These inactive ferments can become contaminated quite easily.

Suggestions for obtaining your own particular brew

There are many possible variations that can be introduced into the scheme given above for the production of tea cider. Depending on the patience and perseverance of the individual it may be possible to devise many different types of cider and standardize the techniques for their manufacture. It is not advisable to try out variations until sufficient quantities of the ferment have been obtained in culture, so that the loss of some of it can be risked. Variations can be expected with the concentrations of the sugar and tea, and the quality and elevation category of the tea. Low-country teas will probably not produce as good ciders as high-growns, but even this is not a hard and fast rule as there may be several occasions when a low-grown tea can produce a better cider than a high-grown.

The time of fermentation has a profound effect not only on the alcohol content of the cider but also on its sweetness or acidity. Adjustments in the time of fermentation can be made to suit individual tastes. The temperature of the room will also have an effect although the prediction of its effects cannot be made with certainty. In hot weather, fermentation is more rapid than in cold weather because the ferment can grow and metabolize faster.

Tea cider is alcoholic, and although its alcohol content would only be about 1%, its sale would naturally come under the provisions of the Excise Ordinance.

Reference

GADD, C. H. (1933). Tea Cider. *Tea Q.* 6, 48-52.

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