

# Formulation of Trichloroacetic Acid with Help of a Syringe

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## Abstract

We describe a unique method for formulating trichloroacetic acid (TCA) in different strengths with the help of a syringe.

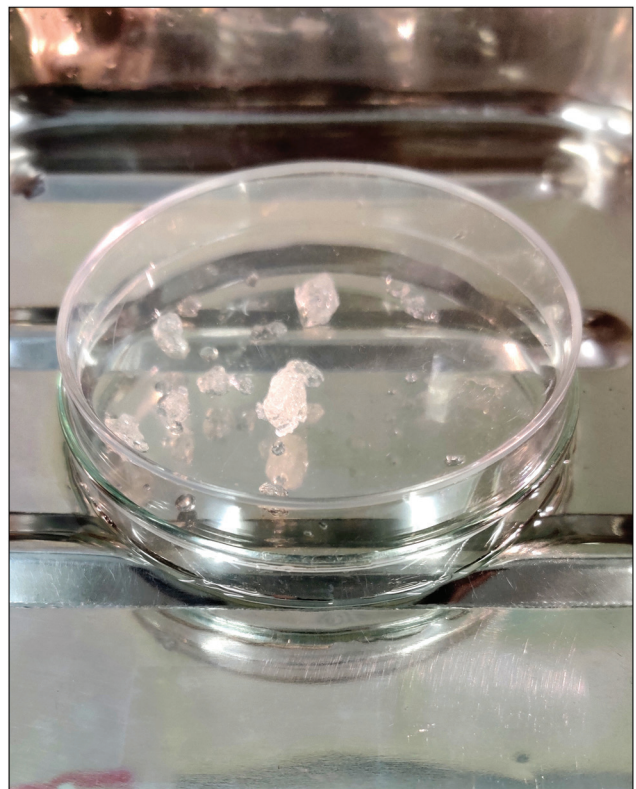
**Keywords:** acne scars, peels, trichloroacetic acid

## INTRODUCTION

Trichloroacetic acid (TCA) in a strength of 30% to 100% is used for acne scars,<sup>[1]</sup> molluscum contagiosum, verruca vulgaris, freckles, and xanthelasma.<sup>[2]</sup> The formulation of TCA solutions in clinics is a cumbersome process, as there is no standard method; thus, clinicians either prefer buying preprepared solutions in different strengths or are dependent on local chemists.

## REPORT

With the help of a syringe, TCA can be formulated in clinics in desired amounts and concentrations. For doing so, we need to use the formula  $C1V1 = C2V2$ , where  $C1$  is the initial concentration of a solution,  $C2$  is the desired concentration, and  $V2$  is the volume that we want to prepare. By substituting values in the formula, we will get the volume of solution needed for the preparation of solution, that is  $V1$ ; for example, to prepare 2ml ( $V2$ ) of 70% TCA( $C2$ ) with 100% TCA( $C1$ ) the value of  $V1$  we will get is 1.4ml. TCA is available in the form of crystals that need to be liquified. For formulating the earlier mentioned concentration, measure 1gm of 100% TCA crystals with the help of a digital pocket weighing machine in a glass petri dish, cover it with a wider glass petri dish that serves as a lid, and finally transfer the dish to a hot water bath (90°C) for 10min [Figure 1] for the crystals to liquify. Pull the plunger of a 2-ml syringe (which is marked up to 2.5ml) to the 0.5ml mark so that TCA does not come in contact with the rubber head of the plunger. Then, take 1.4ml of TCA; while keeping the syringe in an upright position, transfer the content to a glass vial [Figure 2]. Next, take 0.6ml of



**Figure 1:** Trichloroacetic acid crystals in hot water bath

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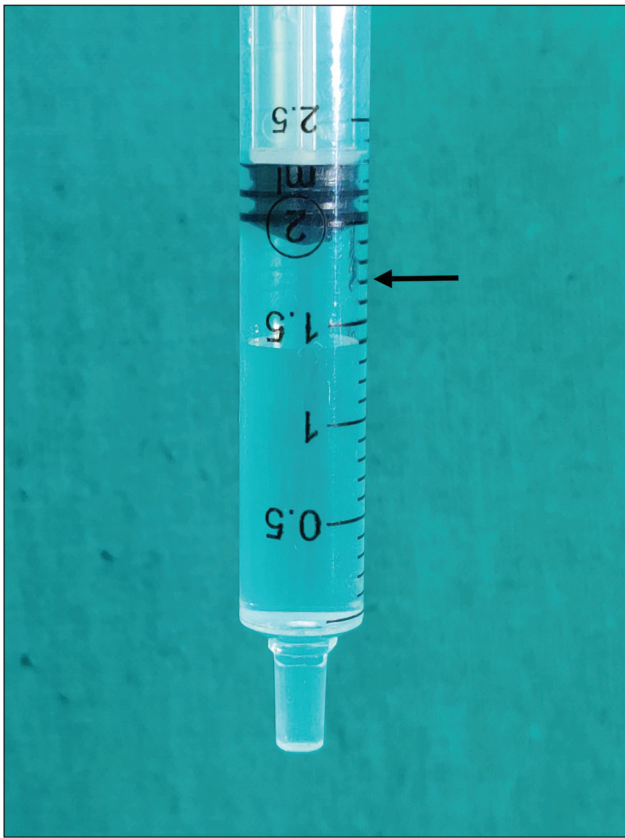
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**Figure 2:** Liquified 100% TCA with air gap to prevent contact with plunger

distilled water in the same syringe and transfer it to the same vial. The result is a 2ml 70% TCA. In the same manner, for preparing 15ml(V2) of 50% TCA (C2), use a 20-ml syringe, take 7.5ml(V1) of 100% TCA(C1), and add 7.5ml of distilled water. The solution prepared can be used for one month.

In this manner, 100 gm of TCA crystals were procured from Qualikems Fine Chem Pvt. Ltd. for 238 INR, and these can be used to formulate 280ml of 50% TCA, which will cost 0.85 INR per ml; however, commercially available peels in the same concentration cost 80–136 INR per ml.

## CONCLUSION

The method described in this article is both easy to use in clinics and cost-effective, which will also benefit patients as the cost of the procedure will be reduced for clinicians.

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## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

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