**How to prepare 3Mix-MP**

### From Niigata University Graduate School of Medical and Dental Sciences http://www.dent.niigata-u.ac.jp/microbio/LSTR/background.html

**3Mix-MP should be prepared on the day of treatment, and until the day, each drug had to be powdered and stocked in a desiccated and tight-capped device separately.**

*(Editor’s Note: Because of tooth staining problems some clinicians are omitting the Minocycline from the formula.)*

**The powdered drug would be used up within a month under dehumidified conditions. When wet, discard.**

The following preparation would be better done by yourself (operation dentists) to be sure when and how the preparation was done. To ensure the antibacterial efficiency of the prepared 3Mix, the drugs have to be potent enough after powdering, stock of respective drugs, and after preparation as 3Mix, and 3Mix-MP. One of the important care is not to mix drug until the day you use 3Mix, meaning that on the day of treatment, powders of 3 respective drugs are mixed, and then, make up 3Mix-MP by mixing further with MP.

1. Powdering drugs.  
You need:  
1) Tablets/Capsules of Metronidazole, Minocycline, and Ciprofloxacin. 2) Mortar and pestle for powdering the drugs.

3) Clean burs with engine, knives or other instruments to remove sugar coating and film coating.  
4) 4 Ceramic devices with tight caps to keep each drug separately from moisture and light. Put Silica gel inside the ceramic devices to desiccate.

Purchase Metronidazole, Minocycline, and Ciprofloxacin.  
These may be in forms of tablets or capsules, or in pure powder form.  
One tablet/capsule may be enough for the need in one month.   
If so, you will prepare each of 3Mix dugs once a month, and the other remaining tablets/capsules are kept in original packages to avid the efficiency losses.

1) Take one tablet of Metronidazole, which may be sugar coated. Using burs or others, sugar-coating layers will be removed.  
If you use Asuzol tablets, pink line indicates the boundary of the sugar coating layer. Remove the side-edge partly to make the pink line clear, and then remove out the outer layers of tablets according to the guidance of pink line. The core is used.  
2) Crash, smash and grind the tablet core to obtain fine powder.  
3) Transfer to ceramic device, cap tight. You may use paraffin coated drug-rapping paper to rap powder. Keep dry with desiccates.

4) Wash and dry all the instruments used for Metronidazole powdering to avoid mixing with the other drug. You may use ethanol to dry mortar up, if necessary.

5) Take one tablet of Ciprofloxacin. it may have film-coating. Using a knife, scissors or others, take off the coating. Do 2). Un-removed film fractions may be found in this procedures, and if so, take those off. Do 3) and 4). This clean-up step should not be omitted.

6) Take one capsule of Minocycline. This may be capsule form. Open capsule and place the content onto mortar. Do 2) to break micro-capsule structure and make fine powder. Do 3) and 4).  
*(Editor’s Note: Because of tooth staining problems some clinicians are omitting the Minocycline from the formula.)*

Now you have fine powders of Metronidazole, Minocycline, and Ciprofloxacin in separate ceramic devices. The fine powder should me used up within a month. So you will prepare drug-powders every month at least.

2. 3Mix-MP preparation  
On the day of treatment, you will do this procedures, and 3Mix-MP preparation can be used on the day. Unused 3Mix-MP should be discarded at the end of the office hour.  
You need:  
1) Three devices with drug-powder. If you stock these devices in a refrigerator, you should wait to open the caps for a while until the temperature of devices become room temperature to avoid inducing dew drops.  
2) A clean and dry kneading glass board/paper with a spatula.  
3) the Forth device to keep prepared 3Mix-MP.

1) Using spatula, take Metronidazole (MN) drug-powder onto kneading pad. Wipe and make clean the spatula to avoid contamination of MN with the next drug-powder. Place MN device far away after capping tightly, not to take it again. This is sometimes important for someone who is not so much strictly minded. Because we need 3 kinds of drugs exactly, not 2 or 1 kind(s) to kill all the types of bacteria in endodontic lesions.  
2) Using clean and dry spatula, the same amount of Minocycline (MINO) drug-powder onto kneading pad. Wipe and make clean the spatula to avoid contamination of CIPRO with the next drug-powder. Place MINO device far away after capping tightly, not to take it again.  
3) Using clean and dry spatula, the same amount of Ciprofloxacin (CIPRO) drug-powder onto kneading pad.   
4) Mix those and make up 3Mix.  
Metronidazole : Minocycline : Ciprofloxacin=1 : 1 : 1

1) At the other areas, take one part of Propylene glycol (P) and the same volume of Macrogol (M). Mix well to make up MP. Stickiness will be like 70% whipped cream. Remind that only one part of MP against 7 parts of 3Mix is needed to make 3Mix-MP. So only small amount of M and P needed.  
M : p=1 : 1

1) For standard preparation, mix one-part of MP and 7-part of 3Mix.  
Standard preparation: 3Mix : MP=7 : 1

The final preparation will be ball-like structure of 1mm diameter. When you cannot make rounded ball-like structure using spatula, the preparation is so soft. Add more 3Mix. When your preparation becomes flake-like dry structure, the preparation is so hard. Add more MP.

2) Use the 3Mix-MP preparation. The remaining can be stoked in the forth device. If you leave 3Mix-MP on kneading pad (this may be also acceptable, if covered by another kneading paper), Mix-MP will be dried with time, and if so, readjust the stickiness by adding MP.  
3) It is quite simple and easy to prepare 3Mix-MP. If you think so, you better prepare 3Mix-MP for each patients immediately before start the treatment (or during the treatment), and discard it after the treatment.

Anyway, at the end of the day, remaining 3Mix-MP should be discarded. Please enjoy preparing new 3Mix-MP on the other days.

**One of important points for clinical successes  
Enough antibacterial potency of 3Mix-MP. For this, stock and prepare in correct and proper ways.**