TI02-45ENG-REV2
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TECHNICAL INFORMATION

Thin Layer Chromatography of Marijuana
Catalog No. MZ020

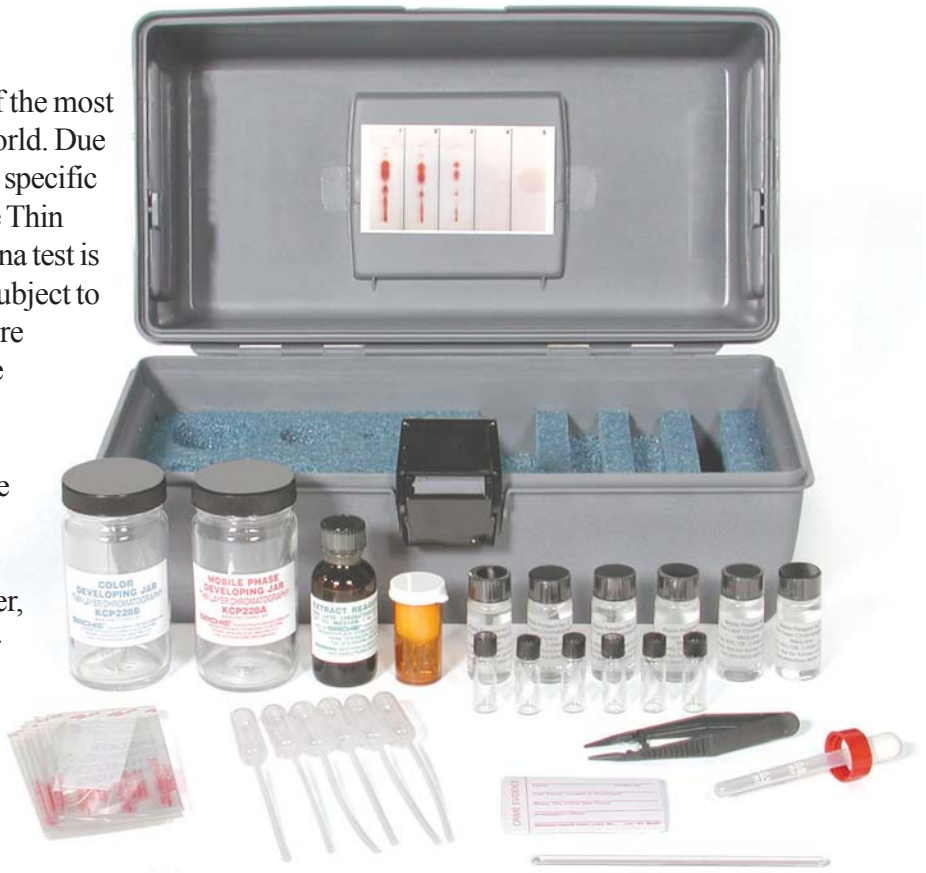
BACKGROUND

Cannabis sativa L.	Botanical name of the hemp plant
Cannabis	Genus
Sativa	Species
L.	Abbreviation for Linne, Karl von: Swedish botanist who originated a system of plant identification
Cannabis indica and Cannabis Americana	Varieties of Cannabis sativa L.

INTRODUCTION

Marijuana is known to be one of the most abused narcotics throughout the world. Due to its high rate of criminal activity, a specific chemical field test is necessary. The Thin Layer Chromatography of Marijuana test is relatively simple to use and is not subject to false positives. The testing procedure requires only minute amounts of the suspected substance.

Marijuana contains a mixture of chemical compounds. The presence and concentration of these components is dependent largely on the origin and age of the plant. However, the plant's constituents can be concentrated in vitro, and the most notable product of this process is hashish. Marijuana contains over 400 chemicals, the most important of which are Cannabinol (CNB), Tetrahydrocannabinol (THC), and Cannabidiol (CBD).



No. MZ020 Kit and Components

The pharmacologically active ingredient in Marijuana is tetrahydrocannabinol (THC). If the plant material is void of THC, no pharmalogic effect will be experienced after smoking Marijuana.

THC is chemically unstable and will disappear (alter chemically), particularly in old, dried material and when exposed to light.

PRECAUTIONS

- Consult the appropriate Material Safety Data Sheet (MSDS) prior to use.
- The extract reagent included in this kit contains petroleum ether and is highly flammable. Do not use in the presence of an open flame, sparks, etc.
- Use only in well-ventilated areas.
- Read through this entire manual prior to conducting tests.

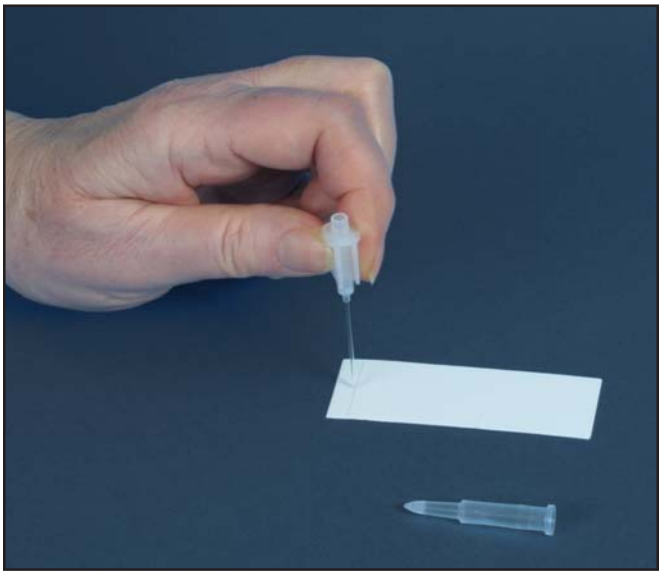
PREPARATION AND PROCEDURE

The following items are required for one complete test:

1-Disposable Capillary Pipette
1-Extract Retention Vial
1-Ten-Milliliter Vial Mobile Reagent No. 2
1-Color Developer Reagent No. 2 Capsule
1-Thin Layer Chromatographic Sheet
1-Sheet Sealer (Hinge Lifter)

Because this test is specific, the pipette and extract retention vial used to conduct a test must be disposed of to avoid contamination between tests.

1. Pour l vial of Mobile Reagent No. 2 into the screw cap developing jar labeled "Mobile Developing Jar."
2. Close the developing jar tightly, swirl, and place on a level surface.
3. Place the suspected plant material into one of the small retention vials.
4. Add enough of Extract Reagent No. 1 to the suspect material in the vial to just cover the material. ***CAUTION: Adding too much of the Extract Reagent will dilute the mixture and reduce test sensitivity.***
5. Close the sample vial tightly and shake for one minute.
6. After shaking allow all course material to settle.
7. Remove the protective cover from a disposable capillary pipette and submerge it into the liquid in the retention vial. Allow the capillary to fill. (Capillary will fill automatically in a fraction of a second.) Be certian not to pick up solid material.
8. Holding the capillary pipette in a vertical position, place the tip directly in the center on the thin line on the dull side of the chromatographic sheet. A slight pressure may be necessary to completely empty the capillary. If only small quantities of the plant material are being tested, i.e., leaf fragments or a pinhead of hashish, additional spotting may be necessary. To re-spot the sheet, follow the above procedure two or three times, but be sure to spot the sheet in the same location each time. *Do not re-use capillary on another test.*

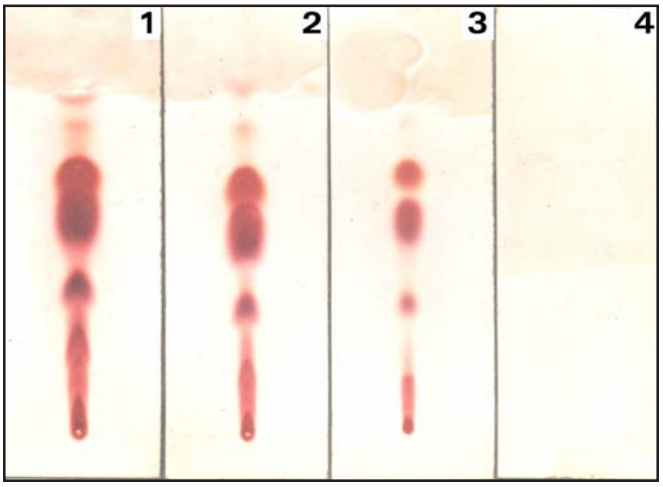


STEP 8—Empty capillary on the thin line on the dull side of the chromatographic sheet.

9. Keep the developing jar firmly on the flat surface, remove the lid, and place the spotted sheet in the Mobile Phase Developing Jar. Be sure the spotted end is placed in the liquid. Replace the screw cap carefully. Avoid disturbing the developing jar.
10. Allow the liquid to move to the top of the chromatographic sheet (within ½ inch [13 mm] of the top or approximately five minutes, depending on atmospheric conditions).
11. While the sheet is in the Mobile Phase Jar, fill the Color Developing Jar with water to the neck of the jar.
12. Empty one capsule of Color Developing Reagent No. 2 into the jar of water. Replace the cap, shake until the powder dissolves, and then remove the cap.
13. Remove the chromatographic sheet from the Mobile Phase Developing Jar and allow it to air dry, approximately 30 seconds.
14. Holding the sheet at the top, insert it into the Color Developing Jar liquid and remove it immediately. If the sheet is submerged too long in this jar, the silica gel coating will disengage from the sheet. A quick IN and OUT is all that is necessary.
15. Upon removal of the sheet from the color developing liquid, blot the sheet gently with the filter paper furnished in the kit or blot gently with a paper towel.
16. Compare the developed chromatographic sheet with the sample picture furnished.
17. The sheet may be preserved in one of the hinge lifters furnished. This provides permanent preservation of the sheet.

Photograph Comparisons

The standard pattern of Marijuana after positive test development using Thin Layer Chromatography is shown to the right. The suspect material in a positive reaction will have similar spot patterns and comparable colors. The intensity of the colors may vary, either lighter or darker, dependent on the concentration of the compounds in the plant. However, not all of the spots seen on the photograph need be present in the material analyzed. Whenever one, some, or all of the characteristic spots with their distinctive colors and location are present, the material is identified as Marijuana. The method is sensitive and specific.



Sheet No. 1—Strong reactions. Big spots and intense colors.

Sheet No. 2—Moderate reactions. Moderately sized spots and distinctive colors.

Sheet No. 3—Weak reactions. Faint spots and faint colors.

Sheet No. 4—Negative reaction. No discernible colors in the red to blue spectrum. Sample is not Marijuana (Cannabis sativa).

Final Notes

1. This is a nondestructive test. The material used for testing is not changed when conducting this test. If the lid of the sample vial is removed for approximately one hour, the extract solution will evaporate and the tested material will return to its original state.
2. The test is specific and extremely sensitive. All apparatus must be disposed of after testing to eliminate contamination. This does not include the two developing jars. These may be thoroughly rinsed in clean water. The tweezers and glass rod may be used after rinsing and drying. ***CAUTION: The Mobile Phase Developing Jar must be dry before conducting a test.***
3. The Mobile Reagent No. 2 and Extract Reagent No. 1 are extremely flammable. ***Do not use near flame. Do not smoke.***
4. The Chromatographic Sheet is most sensitive to the touch after it has been removed from the Color Developing Jar. Handle with care until sheet has dried.
5. This test is extremely sensitive and minute quantities of materials may be tested.

REPLACEMENT SUPPLIES

MZ020 ..... Thin Layer Chromatography of Marijuana (Kit)

MZ020A ..... Replacement Test

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