

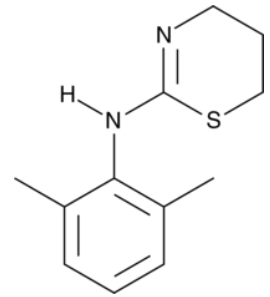
XYLAZINE TEST STRIP 1000ng/ml

Immunoassay Performance Characteristics

INTRODUCTION

Xylazine is a pharmaceutical drug used for sedation, anesthesia, muscle relaxation, and analgesia in animals. Xylazine is not FDA-approved for use in humans. Human use of xylazine may result in serious and life-threatening side effects that appear to be similar to those commonly associated with opioid use, making it difficult to distinguish opioid overdoses from xylazine exposure.¹

Research has shown xylazine is often added to illicit opioids, including fentanyl, and has been linked to an increasing number of overdose deaths nationwide. The combination of xylazine with opioids or other recreational drugs may increase their toxic effects by potentiating sedation and causing respiratory depression, hypotension, and bradycardia.²⁻³

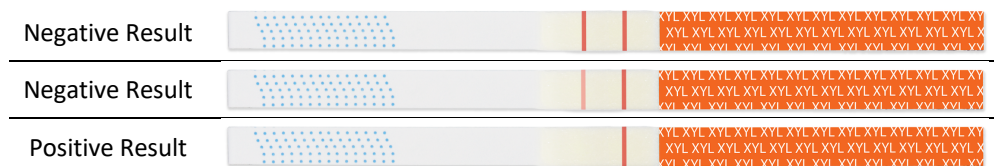


W.H.P.M., Inc., a California-based immunoassay manufacturer, has developed a xylazine test strip designed to facilitate the rapid, low-cost, and accurate detection of xylazine in solution (H_2O). As xylazine is often mixed with other illicit substances and cutting agents, researchers have conducted the following study to evaluate the performance characteristics of the xylazine test strip for potential cross-reactivity when challenged with relatively high concentrations of known cutting agents and illicit substance compounds diluted in water.

MATERIALS & METHODS

Researchers prepared solutions of both the target analyte (xylazine) and potentially cross-reacting substances by serial dilution in tap water. Each dilution was tested in triplicate in accordance with the study device instructions for use. Results were interpreted by researchers at 3 minutes and scored on a scale of 0-10 based on the immunoassay line intensity. Test strips exhibiting a test line intensity of 1 or higher after 3 minutes were defined as a negative test result. Test strips exhibit a test line intensity of 0 (no line visible) after 3 minutes were defined as a positive test result.

Image 1. Xylazine Test Strip results



The target analyte material and potentially cross-reacting substance materials were obtained from authorized and licensed suppliers.

Illicit Substances

- Xylazine
- Fentanyl
- MDMA
- Methamphetamine

Potentially Cross-reacting Substances

- Diphenhydramine
- Phenacetin
- Lidocaine
- Levamisole
- Procaine
- Quinine

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RESULTS

Substance	10 µg/ml	100 µg /ml	500 µg /ml	1 mg/ml	5 mg/ml	10 mg/ml
Xylazine	POS	POS	POS	POS	POS	POS
Fentanyl	NEG	NEG	NEG	NEG	NEG	NEG
Methamphetamine	NEG	NEG	NEG	NEG	NEG	NEG
MDMA	NEG	NEG	NEG	NEG	NEG	NEG
Diphenhydramine	NEG	NEG	NEG	NEG	NEG	NEG
Phenacetin	NEG	NEG	NEG	NEG	NEG	NEG
Levamisole	NEG	NEG	NEG	POS	POS	POS
Lidocaine	NEG	NEG	NEG	NEG	NEG	NEG
Procaine	NEG	NEG	NEG	NEG	NEG	NEG
Quinine	NEG	NEG	NEG	NEG	NEG	NEG

CONCLUSION

The Xylazine Test Strip manufactured by W.H.P.M., Inc demonstrated no cross-reactivity with the illicit substances tested in this study including fentanyl, methamphetamine, and MDMA. The results indicate that the xylazine test strip evaluated is highly specific to xylazine detection when testing polysubstance compounds containing two or more of the listed illicit substances.

Of the six potentially cross-reacting substances/cutting agents tested, the xylazine test strip demonstrated cross-reactivity resulting in a false-positive results with Levamisole at concentrations of 1mg/ml or more. It should also be noted that Lidocaine at concentrations of 10 mg/ml did result in a weak test line that could be misinterpreted if the user is not careful. No cross-reactivity was observed when testing other common cutting agents including Diphenhydramine, Phenacetin, Procaine, and Quinine at concentrations up to 10 mg/ml in solution. The potential cross-reactivity observed with Levamisole may be problematic if samples are improperly prepared and the substance is present in relatively high concentrations. However, the observed cross-reactivity is unlikely to compromise the substance testing effectiveness of the xylazine test strip for detecting xylazine in solution when used within the recommended solution preparation concentration range of 2mg of substance/ml.

REFERENCES

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