DETERMINATION OF PARAQUAT IN EDIBLE OIL

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SCOPE

This test method prescribes the requirements for the determination of paraquat residue in edible oil.

DEFINITION

Paraquat is the common name for 1,1′-dimethyl-4,4′-bipyridium ion (*Figure 1*). The commercial form of this ion is dichloride and di-(methyl sulphate) sold as grammaxone, *etc*. Paraquat dichloride is a colourless crystalline solid, which is very soluble in water. As a herbicide, paraquat destroys green plant tissue through contact action with some translocation.

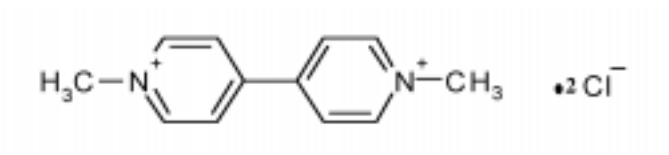

Figure 1. Chemical structure of paraquat.

PRINCIPLE

The method involves a cation exchange clean-up and reduction by sodium dithionite (*Figure 2*). This results in the formation of a free radical with intense blue colour which absorbs strongly at 396 nm (*Figure 3*).

Figure 2. Cation exchange chromatography column set-up.

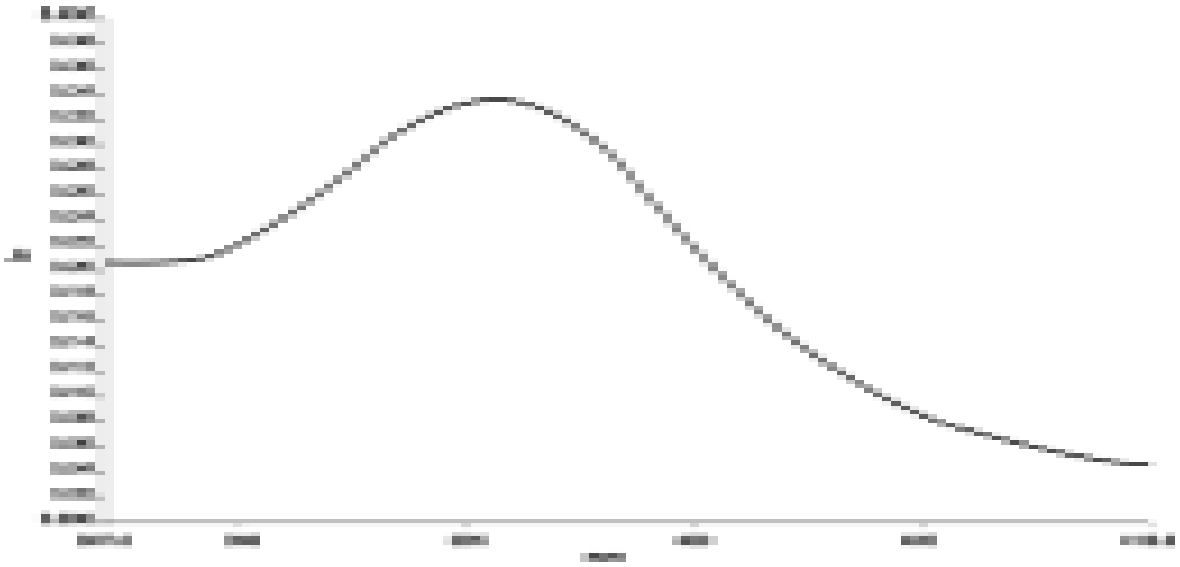

Figure 3. Absorbance at 396 nm.

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RECOVERY

Recoveries of paraquat from oil matrix at the range of 0.05-1.5 µg g^{-1} were 50%-83%.

Coefficient of variations were <5% for high concentrations and ~17% for low concentrations.

Limit of detection was 0.01 µg g^{-1}.

For more information kindly contact:

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