

Practical: liquid preparations- expected results

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Expected Results Injectable Paracetamol solutions are known to be heated to around 60°C as this increases dissolution of acetaminophen in the solvent, and therefore stabilizing the solution for intravenous injection.

Figure 1: Showing Acetaminophen degradation

Heating at higher temperatures can lead to degradation of acetaminophen (figure 1)

Heat can also cause the formation of dimers. Dimers can form at a temperature of 50°C and 60°C and above. When stored the percentage of dimer increases. It is important to maintain sterilization when making injectable Paracetamol but to also reduce the risk of degradation products forming such as dimers.

For sample 1 (not heated to 60°C) we would expect no dimer to form. In the HPLC chromatogram we would expect to see peak for acetaminophen (provided the instrument is calibrated to detect Acetaminophen) and also maybe some other known compounds in the solution.

For sample 2 (heated to 60°C) we would expect some degradation products to form i. e. Dimers.

We would expect then to see a perhaps reduced peak of acetaminophen and perhaps other peaks representing degradation products that have formed in the solution. It would also be expected that tablets that contain soluble binders like PVP to have a rapid rate of degradation. It has disintegrating characteristics, thus the preparation does not contain a disintegrant.

References

<https://assignbuster.com/practical-liquid-preparations-expected-results/>

(1) R. K. Gilpin, W. Zhou, (2004), Journal of Chromatographic Science, Volume 42, Studies of Thermal Degredation of Acetaminophen Using a Conventional HPLC Approach and Electrospray Ionisation-Mass Spectrometry, Page 16