



AKINA, INC.
Business & Technology Center, 1291 Cumberland Avenue
West Lafayette, IN 47906-1385

John Garner
Manager

Tel: (765) 464-0501x6; Fax: (765) 464-0820
E-mail: jg@akinainc.com
<http://www.akinainc.com/>

PolyVivo AK09-Decylated Poorly soluble drug (Coumarin-6) solubility testing

Purpose

Determine the drug solubilization power of AK09D on a model poorly soluble hydrophobic drug (Coumarin-6).

Method

Excess Coumarin-6 solid was placed in a series of 2ml microcentrifuge tubes and to each tube ~1.5 ml of test solution was added and the tubes were incubated upright at 37°C with 120RPM orbital agitation overnight to equilibrate. The next day 1ml of each solution was pulled up into a pre-warmed syringe and pushed through a 0.45µm PVDF filter to remove any particulates. The solution was diluted with 1 ml of ethanol and tested for absorbance at 460 nm on a Genesys20 Vis. The absorbances' were compared with a set of known standards made by diluting coumarin-6 in pure ethanol and multiplied by dilution to obtain the solubility of coumarin-6 in each solution.

This method was followed for both freshly dissolved AK09D as well as a 1% w/v AK09D solution that was incubated in water at 37°C for 1 week prior to use.

Statistics: All tests were performed in triplicate. Confidence values were calculated based on student's t-test at 95% confidence level.

Results

Figure 1 shows the relationship between AK09D w/v% in water and the resultant coumarin-6 solubility.

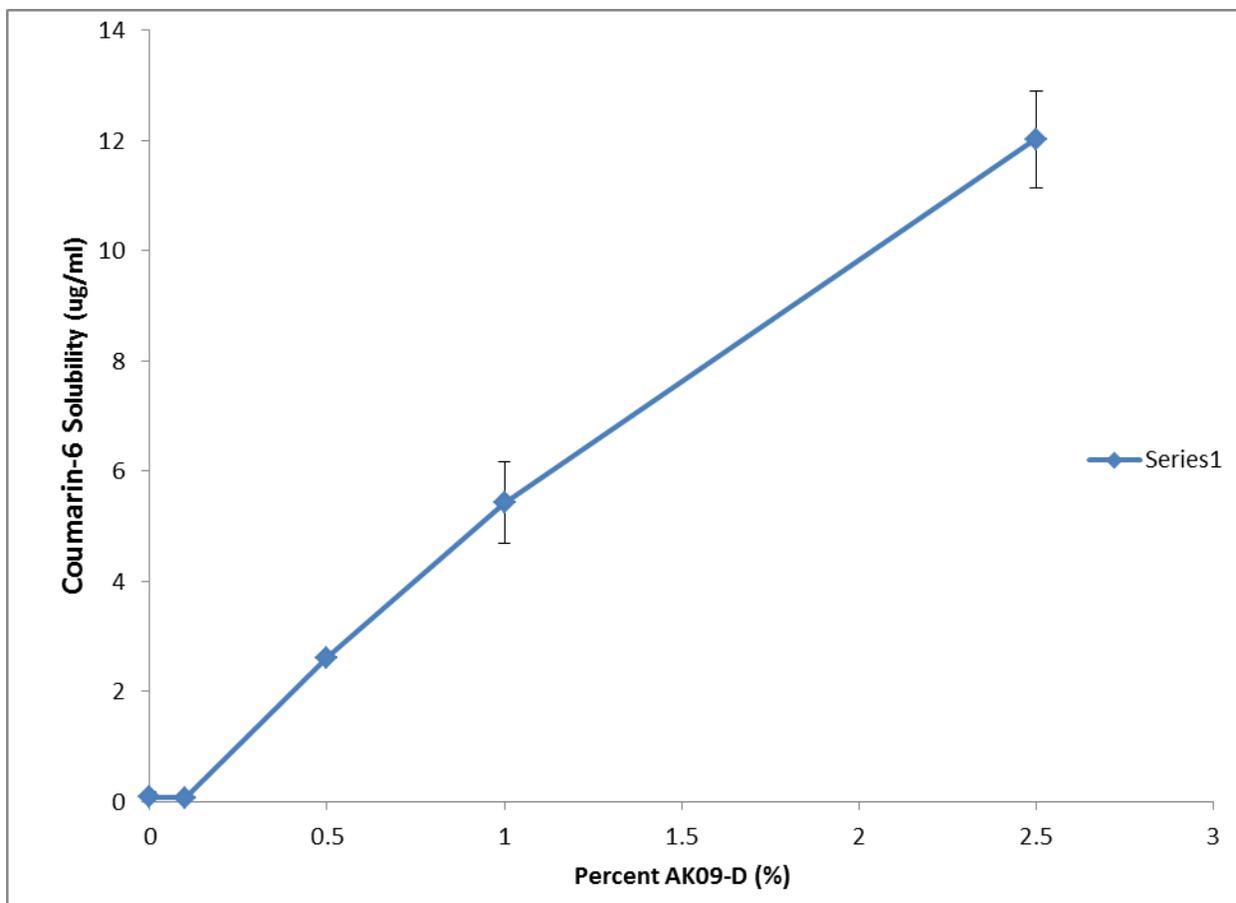


Figure 1. AK09D w/v% in water and Coumarin-6 solubility.

As can be seen the solubility of coumarin-6 increases from <1ug/ml in water to >10ug/ml with 2.5% w/v AK09D.

The coumarin-6 solubility of AK09D fresh was 5.42 ± 0.74 ug/ml and after one week of 37C incubation the solubility of coumarin-6 was 4.85 ± 0.46 ug/ml. Although the value is less the difference is statistically insignificant indicating minimal loss of dissolving power over the course of 1 week at 37C.