InVivos
BRINGING LIFE TO YOUR RESEARCH

Comparison study of absorbency control in Aspen and Corncob bedding

Rizal Aidil, Nurhafizah Rahim, Nijaguna Bethur. Dept. Production, InVivos Pte Ltd, Singapore

I. BACKGROUND

Bedding used for rodents in lab animal facilities is one of the major components within a cage environment as it provides warmth and maintains a clean and dry space in the cage. One of the characteristics of a good bedding material is its ability to absorb moisture. Moisture control is known to be crucial in inhibiting bacterial growth and reducing secretion of ammonia in the animal cages. The aim of this study was to demonstrate and compare the absorbency effectiveness in two commonly used bedding materials namely Aspen and Corncobs.

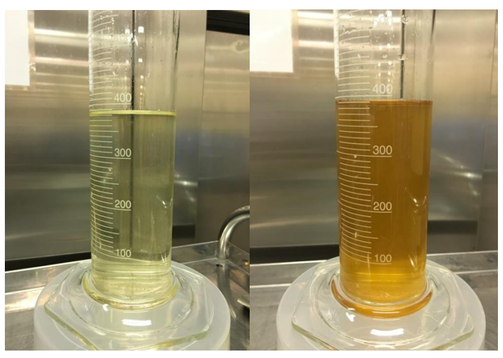
II. METHOD

1. A volume of 500cm^3 of bedding is used in each cage. This volume of bedding was used as it provided an acceptable uniform layer on the cage bottom. (cage no. 1145)
2. After mixing the bedding with 500mL of water to ensure all bedding is in contact with water, it was left to soak for a maximum duration of 4 hours and then sieved for 10minutes to remove excess water that is not absorbed by bedding.
3. The amount of excess water was then measured to calculate the total amount of water absorbed by the bedding.

Picture 1: Aspen (Left) and ¼-inch Corncob (Right)

Picture 2: Soaking the bedding in 500ml of water.

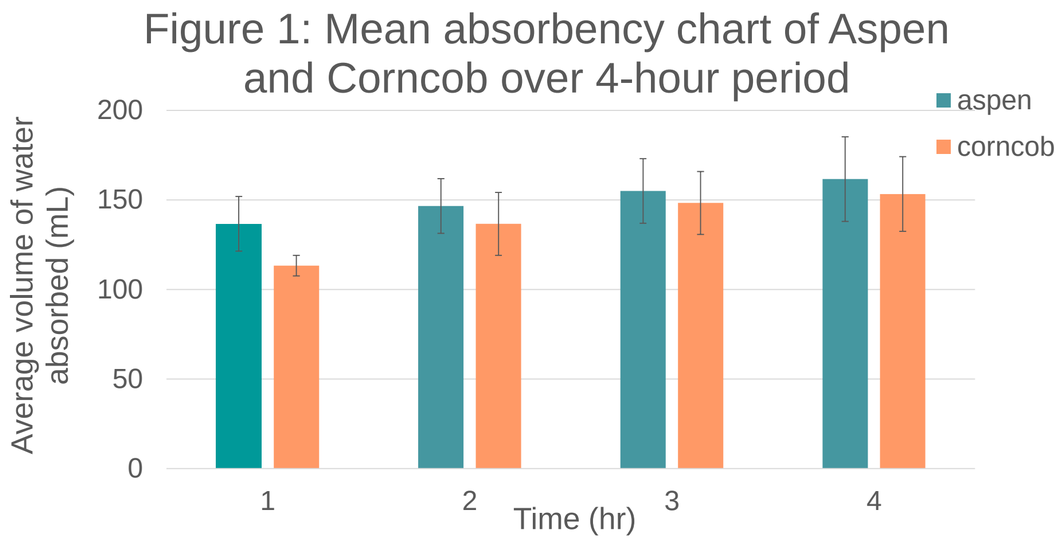
Picture 3: Sieving the bedding.

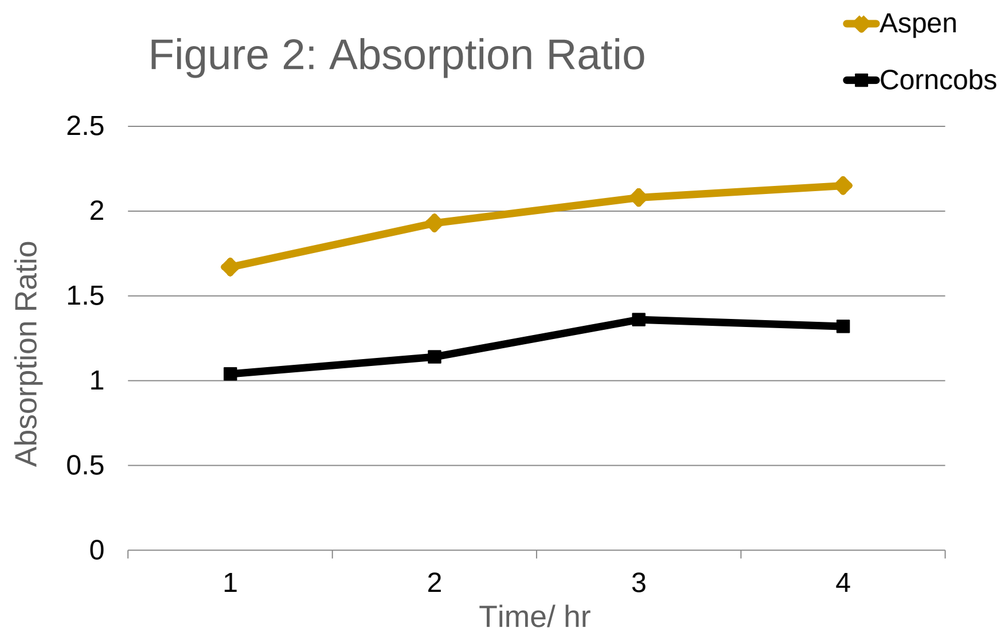


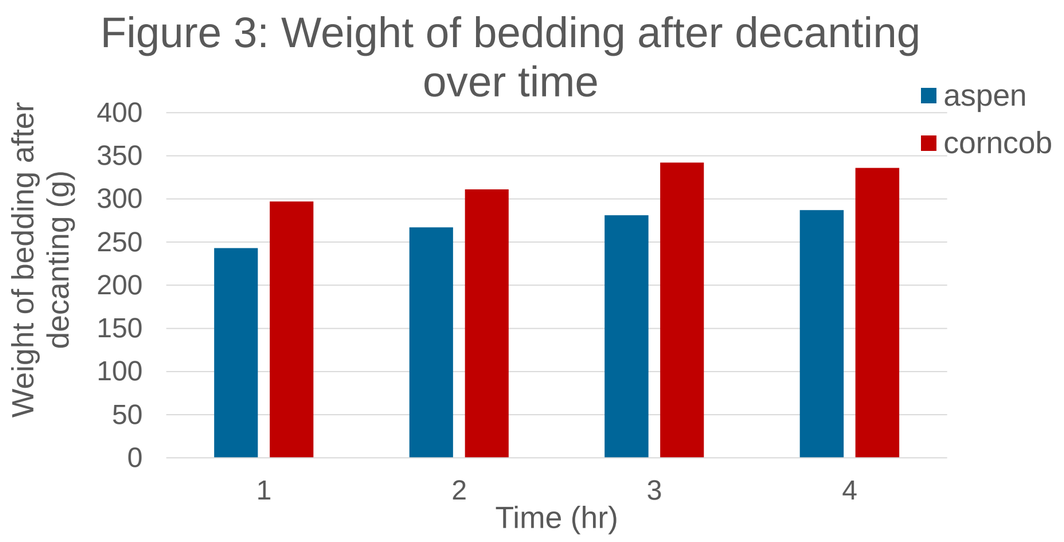
Picture 4: Decanted water of Aspen (left) and Corncob (right) at 1hr mark.

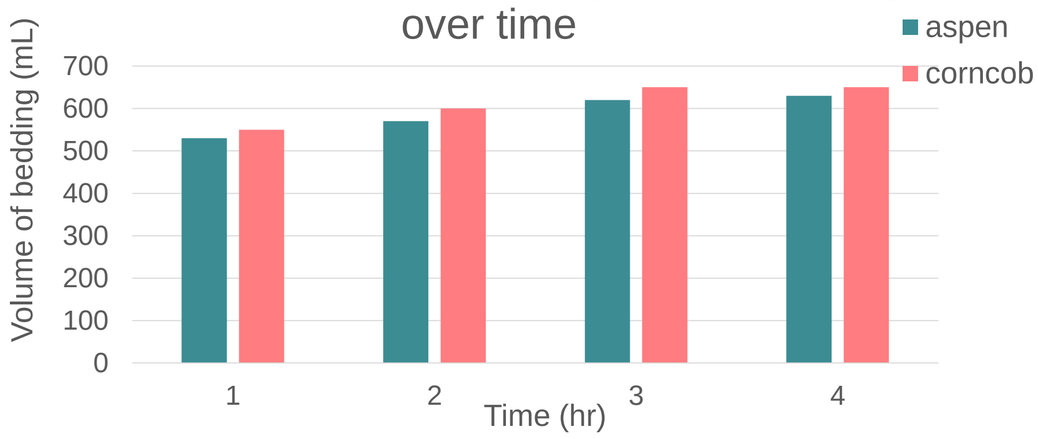
Picture 5: Measuring volume of soaked bedding.

III. RESULTS









IV. DISCUSSION

In Fig.1, it shows that Aspen is more absorptive as compared to the standard ¼-inch Corncob bedding. Their absorption ratio in Fig.2 confirms it.

The initial weight of Aspen bedding is 91g while the weight of Corncob bedding with the same volume, is notably higher at 145g. Looking at Fig. 3, both the weight increased constantly after soaking with water. This could mean that upon time a cage with Corncob will have a higher weight compared to a cage that uses Aspen bedding in it.

It is also interesting to note in Fig. 4 that upon soaking with water, Corncob bedding expanded to a bigger volume as compared to Aspen. This means that a soiled cage with Corncob as contact bedding will have a lower cage space ratio as compared to using Aspen as bedding material.

CONCLUSION

It is observed that Aspen bedding has a higher water absorbency compared to Corncob bedding. It is also lighter and has a bigger cage space ratio when soiled and therefore is the bedding of choice.

A FUTURE DIRECTION

There are many factors to consider when choosing the right bedding other than its absorbency capabilities. Moving forward we would like to look into the ammonia levels secretion, dust particle emission and technicians' preference and comfort of usage.

REFERENCES

- ***Burn CC, Mason GJ. Absorbencies of 6 different rodent beddings: commercially advertised absorbencies are potentially misleading. Lab Anim. 2005, 39, 68–74***
- ***Ago A, T Ras T, M van de Ven EG Patterson-Kane & K Nelson:*** **Rat's preferences for corn versus wood-based bedding and nesting materials. Lab. Anim. 2002, 36, 420-5**
- ***Wirth H:*** **Criteria for evaluation of laboratory animal bedding. Lab. Anim. 1983, 17, 81-4**