



Harvesting Argan Nut Waste for Commercial Uses

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Addressing waste from the argan oil extraction process



Growing pains: Implications of projected waste metrics



Now

~ 1 ton/year



5 years

~ 70 tons/year




10 years

~ 100 tons/year

Provided 12 Acres (50 dunam) of trees will be planted within the next year

(The powerful skincare ingredient: Argan oil, n.d.)




**Identify and evaluate methods
of repurposing argan fruit
waste to develop profitable
commercial products**

Potential repurposing methods worth exploring

Immediate Waste Solutions (1-2 years)	Midterm Waste Solution (5+ years)	Long Term Waste Solution (10+ years)
<ul style="list-style-type: none">• Burnable Campfire Pellets• Pet Bedding/Cat Litter	<ul style="list-style-type: none">• Activated Charcoal (Hydrothermal Carbonization)• Cosmetic Exfoliant	<ul style="list-style-type: none">• Cellulose Extraction

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(Industrial Adhesive, 2020)

Capitalizing on a local market: ANS fuel pellets

100% Fine Crumbs



Green Pressing Machine



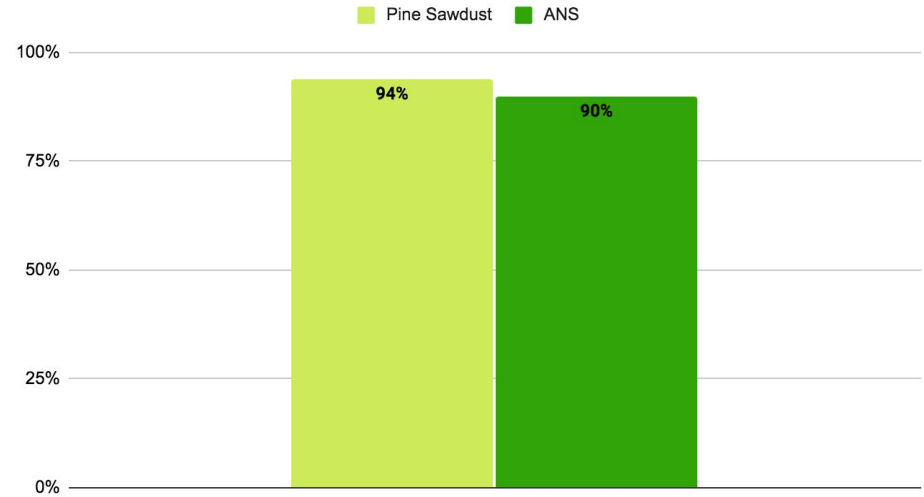
Outputs



Preliminary Campfire Pellet Burning Trials



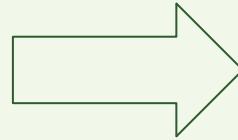
Burning Test: Reduction by Weight (%)



Capitalizing on ANS absorbency: Pet Bedding

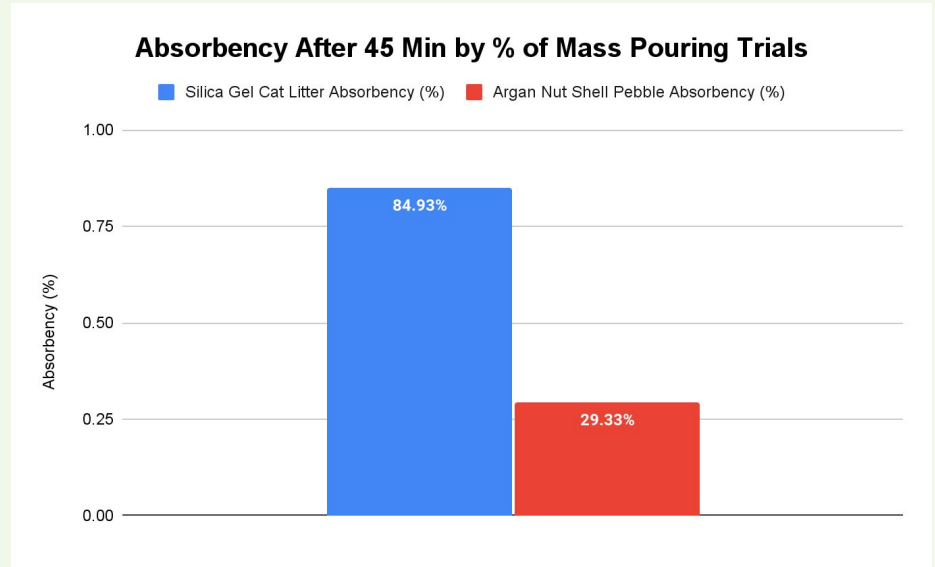
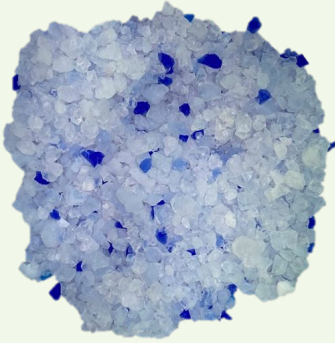


Manual Grinding Machine

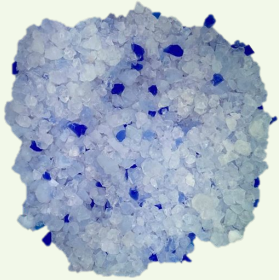


ANS Pebbles

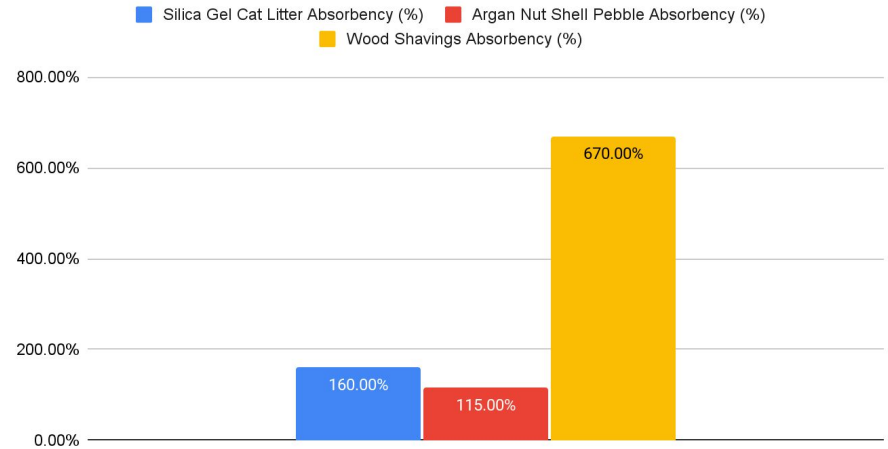
Pet Bedding : Pouring Trials



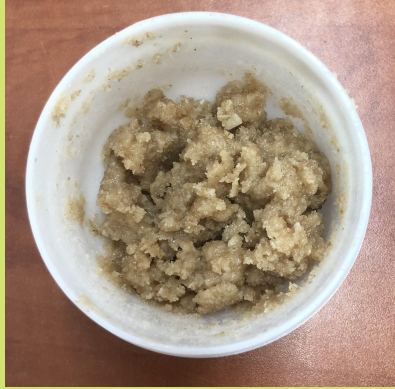
Pet Bedding : Soaking Trials



Absorbency After 60 Min by % of Mass : Soaking Trial



Utilizing exfoliating properties of argan waste byproducts



Base:
Argan Paste



Experimental Abrasive #1:
Crushed Kernel Flakes



Experimental Abrasive #2:
Powderized ANS

Conversing with people in the cosmetic industry

Local cosmetic business owner



(Kibbutz Ketura, 2021)

Kibbutz Ketura Spa Employee



Testing the Cosmetic Exfoliant



Cosmetic Exfoliant Recommendations

- ANS Powder Scrubs
 - Ideal for oily skin - the powder absorbs oil
 - Gentle abrasive
- Argan Flake Scrubs
 - More moisturizing (for dry skin)
 - Stronger abrasive (for resilient skin)

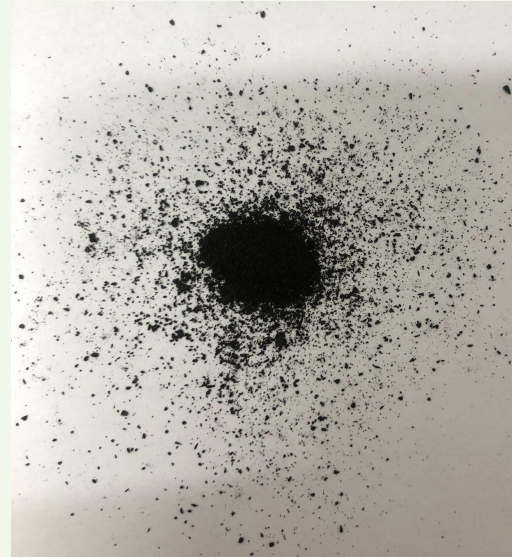


(Shutterstock, n.d.)

Attempts in deriving activated charcoal from ANS



ANS cooked for 7 hours



Ground ANS charcoal

What we've learned...

Making sample products was much more involved than in theory

Burnable campfire pellets and cosmetic exfoliant are promising

Other reuse methods require further development

Thanks!



CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, and infographics & images by **Freepik**.

Let's discuss your questions and feedback...

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