Application of Plant Protein Particles in Cigarette Filter

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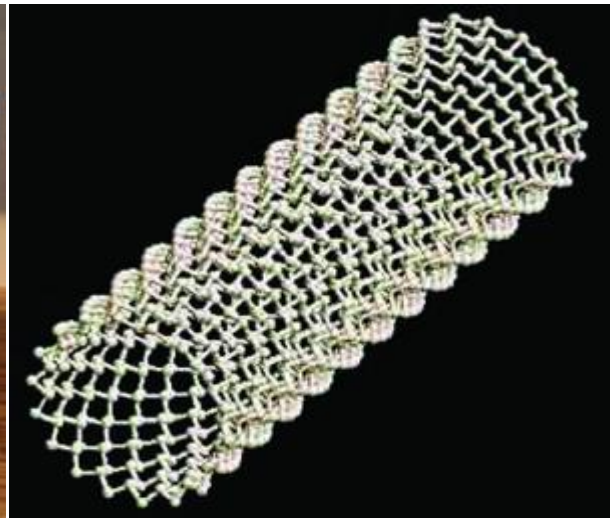
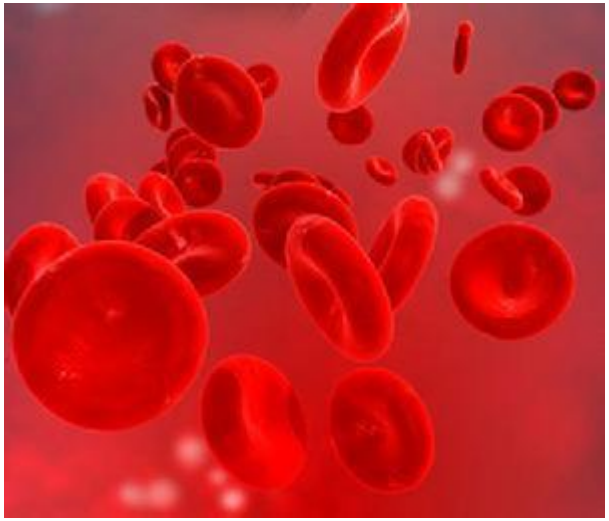
1 Background





2 Experimental

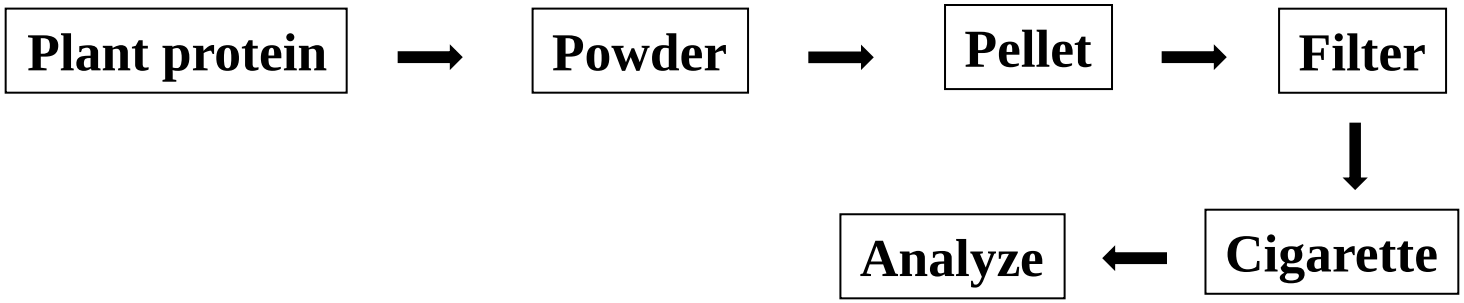
➢*Materials*

wheat

soy

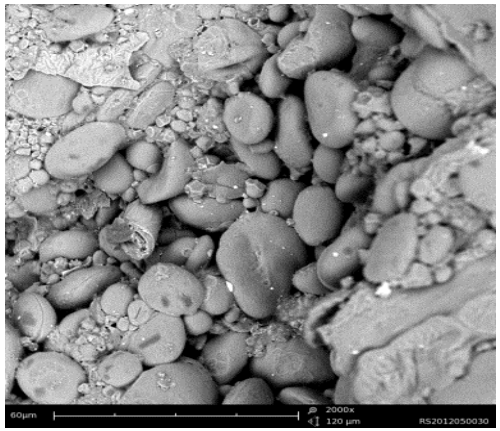
broad bean

➢*Methods*

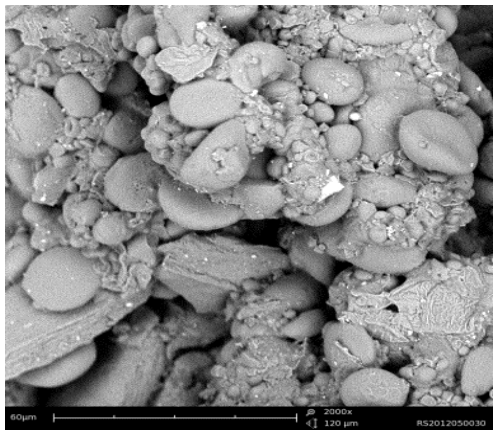


3 Results and Discussion

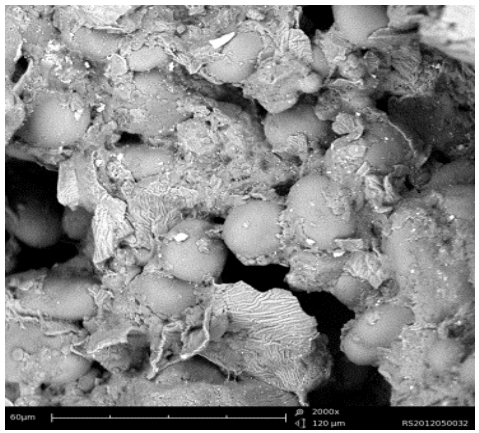
3.1 The morphology analysis of plant protein particle



Wheat protein



Soy protein



Broad bean protein

Fig.1 SEM picture of plant protein particles(2000 times)

3 Results and Discussion

3.2 Composition of plant protein particle filter cigarette mainstream smoke

Table 1 Composition of Cigarette Mainstream Smoke

Sample	TPM/mg	H_2O/mg	Nicotine/mg	Tar/mg	CO/mg	Puff
control sample	11.87	1.25	0.98	10.5	11.5	7.1
Wheat	11.94	1.27	1.00	10.6	11.2	7.0
Soy	12.17	1.24	1.05	10.8	11.5	7.0
Broad bean	12.07	1.23	1.01	10.7	11.5	7.1

3 Results and Discussion

3.3 Yield of harmful compounds in plant protein particles cigarette mainstream smoke

Table 2 Yield of harmful compounds in cigarette mainstream smoke

Sample	CO mg/cig	Phenol μg/cig	Crotonaldehyde μg/cig	HCN μg/cig	B[a]P ng/cig	NH_3 μg/cig	NNK ng/cig
Control sample	11.73	12.31	18.28	-18.76%	8.13	6.22	4.22
Wheat	11.09	12.23	14.85	-19.42%	8.08	6.20	4.20
Soy	-16.25%	11.25	14.73	-19.20%	8.03	6.18	4.13
Broad bean	11.53	10.31	14.77	100.15	8.05	6.14	4.18

3 Results and Discussion

3.4 Sense evaluation

Table 3 The result of sense evaluation

Sample	Comprehensive Description
Wheat	The smoke fragrant relapsed，clear, fine，harmony，have moist feeling and sweet feeling, aftertasre cleanlily.
Soy	The smoke thick, clear, harmony, have sweet feeling, a slight stimulation, aftertasre cleanlily, better comfort.
Broad bean	The smoke thick, clear,naturally, harmony, micro stimulation, aftertasre cleanlily.

4 Conclusion

(1) The effect of crotonaldehyde reduction is significant due to the addition of three kinds of plant protein particles in filter. Respectively, wheat protein reduced 18.76%, soy protein reduced 19.42% and broad bean protein reduced 19.20%. Among, the broad bean protein is evident on reducing effect of phenol, the reduction achieved 16.25%.

(2) Compared to the control sample, the cigarette quality has improved due to the addition of three kinds of plant protein particles in filter.

Thank you!