

EFFECT ON HONEY CONCENTRATION ON MORPHOLOGY OF BUBBLE-ELECTROSPUN POLYVINYL ALCOHOL/HONEY FIBERS

by

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Short paper
DOI: 10.2298/TSCI1603012L

In this study, polyvinyl alcohol fibers containing honey were produced by bubble electrospinning. The surface morphologies of polyvinyl alcohol fibers were studied by a scanning electron microscopy. The results showed the mean diameter of fibers increased as the ratio of honey increased.

Key words: *nanofibers mat, honey, concentration, structure*

Instruction

Honey is not only healthy drinking, but also wound care in ancient times. It is an environmentally friendly material and may play an irreplaceable role in the medical field [1]. In this paper, a control amount of honey was dissolved in the 7 wt.% polyvinyl alcohol (PVA) solutions with the different weight ratio. The PVA fibers containing honey were produced by bubble electrospinning [2-4].

Experiment

About 14 g PVA particles (1750 50) and 2 g dodecylbenzenesulfonic acid are put into 184 g deionized water to gain 7 wt.% PVA mixture. Then a control amount of honey was dissolved in the PVA solutions with the different weight ratio (PVA/honey), such as 50/0, 49/1, 48/2, and 46/4. Bubble electrospinning experiments were carried out at room temperature. The morphologies of PVA/honey nanofibers were studied by scanning electron microscope (SEM). The fiber diameters were measured using Image J software.

Result and discussion

Figure 1 showed SEM photos of PVA fibers containing various ratios of honey. It could be seen that the mean diameter of fibers increased as the ratio of honey increased, and the hierarchical structure was formed, so that we obtained the porous nanofibers mats. In the meantime, it occurred that the fibers crossed bonding with each other while the ratio of honey reached a certain proportion, fig. 1(d). Above all, we got the conclusion that we could get porous breathable nanofibers mat through bubble-electrospinning PVA solution containing honey.

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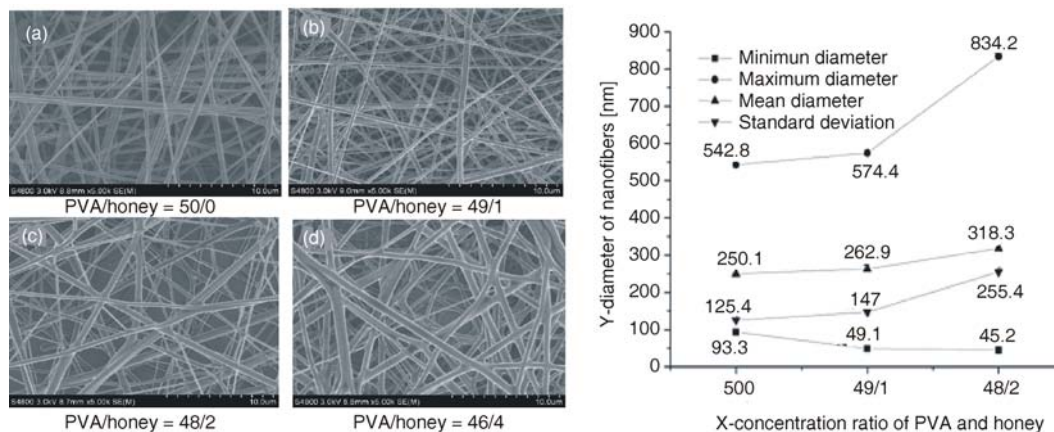


Figure 1. The PVA/honey nanofibers

Conclusion

This study simply introduced the effect of honey concentration on bubble electrospun PVA/honey fibers mats. In order to make the properties of PVA/honey fibers mat more stable and better, further research will be done later. This research will lead to wide potential applications in various engineering fields.

Acknowledgment

The work is supported by Priority Academic Program Development of Jiangsu Higher Education Institutions (PAPD), National Natural Science Foundation of China under Grant No. 61303236, 51403143, and 11372205, Natural Science Foundation of the Jiangsu Higher Education Institutions of China (Grant No. 14KJA130001), Natural Science Foundation of Jiangsu Province under Grant No. BK20140398, Project for Six Kinds of Top Talents in Jiangsu Province under grant No. ZBZZ-035, and Science & Technology Pillar Program of Jiangsu Province under grant No. BE2013072.

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