BAB 5
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan hasil penelitian yang telah dilakukan mengenai optimasi formulasi *hydrogel patch* ekstrak *Acorus calamus* menggunakan variasi konsentrasi *Polyvinyl Alcohol* (PVA) dan gliserin, dapat disimpulkan beberapa hal sebagai berikut :

1. Peningkatan konsentrasi PVA terbukti meningkatkan kekuatan tarik, ketebalan *patch*, dan keseragaman bobot, tetapi menurunkan kadar air.
2. Peningkatan konsentrasi gliserin semakin meningkatkan fleksibilitas *patch* dan juga meningkatkan kadar air dan menurunkan kekuatan tarik.
3. Interaksi antara polimer (PVA) dan *plasticizer* (gliserin) memberikan pengaruh terhadap mutu fisik *hydrogel patch* ekstrak jeringau. Peningkatan konsentrasi PVA cenderung meningkatkan kekuatan tarik, ketebalan, serta keseragaman bobot namun menurunkan elongasi dan kadar air. Sebaliknya, peningkatan gliserin meningkatkan fleksibilitas *patch* yang tercermin dari kenaikan ketahanan lipatan dan persen elongasi, tetapi dapat menurunkan kekuatan tarik dan keseragaman bobot.

5.2 Saran

1. Untuk penelitian lanjutan, disarankan untuk melakukan uji stabilitas fisik dan kimia terhadap sediaan *patch* selama penyimpanan jangka panjang untuk memastikan kestabilan kadar air, pH, dan kekuatan mekanik dalam berbagai kondisi suhu dan kelembapan.

2. Perlu dilakukan evaluasi lebih lanjut terhadap pelepasan dan penetrasi zat aktif secara *in vitro* maupun *in vivo* untuk mengetahui efektivitas pelepasan senyawa aktif *Acorus calamus* melalui kulit, sehingga dapat memperkuat klaim efektivitas sediaan dalam terapi berhenti merokok.
3. Penelitian selanjutnya juga disarankan untuk menggunakan bahan polimer alami (misalnya kitosan atau gelatin) sebagai alternatif atau kombinasi dengan PVA guna memperoleh *patch* dengan biokompatibilitas dan biodegradabilitas yang lebih baik.
4. Pengujian sensori dan kenyamanan pengguna *(user acceptance test)* dapat dilakukan untuk menilai kenyamanan, daya lekat, dan respon kulit terhadap *patch* dalam kondisi pemakaian sebenarnya.
5. Diharapkan penelitian ini dapat menjadi dasar pengembangan sediaan transdermal berbasis bahan alam yang inovatif dan aman, khususnya untuk aplikasi terapi adiktif seperti ketergantungan nikotin.

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