

BAB 5

KESIMPULAN DAN SARAN

5.1. Kesimpulan

Berdasarkan hasil karakterisasi fisika dan kimia lendir tanaman lidah buaya (*Aloe vera* (L.) Burm. f.), dapat disimpulkan bahwa lendir lidah buaya memiliki sifat fisik dan kimia yang mendukung potensinya sebagai eksipien alami dalam sediaan farmasi.

1. Secara fisika,
 - a. *Sweeling index* $52,56 \pm 4,06\%$
 - b. Densitas dengan nilai ρ_{tapped} 0.390990, ρ_{bulk} 0.36461. Dengan nilai indeks kompresibilitas 7,2% dan rasio *Hausner* 1,072
 - c. Viskositas 30,6 cPs dengan sifat pseudoplastik. Menunjukkan kemampuan menyerap air, membentuk gel, dan mendukung proses formulasi sediaan padat maupun semi-padat.
2. Secara kimia,
 - a. Lendir menunjukkan pH asam lemah ($4,45 \pm 0,01$)
 - b. Hasil skrining fitokimia, dengan kemungkinan keberadaan flavonoid dan karbohidrat
 - c. Spektrum FTIR: Pita O–H (3279 cm^{-1}) menandakan alkohol, fenolik, dan polisakarida. Pita C–H alifatik ($2922\text{--}2843 \text{ cm}^{-1}$) mengindikasikan karbohidrat dan rantai hidrokarbon. Puncak C=O (1738 cm^{-1}) menunjukkan ester, asam organik, dan antrakuinon. Daerah C=C aromatik dan O–H/N–H ($1598\text{--}1414 \text{ cm}^{-1}$) menandai flavonoid. Daerah

- C–O / C–O–C ($1314\text{--}1027\text{ cm}^{-1}$) mengonfirmasi polisakarida dengan ikatan glikosidik seperti asemannan.
- d. Spektrum $^1\text{H-NMR}$: Sinyal 1,8–2,8 ppm menunjukkan proton alifatik dekat karbonil atau oksigen, asam organik. Sinyal sekitar 3,1–3,3 ppm mengindikasikan proton –CH–O– dari unit glikosidik polisakarida. Data ini mendukung keberadaan polisakarida asemannan sebagai komponen utama lendir.

5.2. Saran

Berdasarkan hasil penelitian yang saya lakukan perlu dilakukan optimasi konsentrasi lendir pada formulasi tablet dan gel untuk menentukan konsentrasi paling efektif sebagai eksipien. Optimalisasi metode ekstraksi dan kondisi proses disarankan untuk meminimalkan pencoklatan atau *browning* dan meningkatkan konsistensi mutu polisakarida, yaitu asemannan. Dilakukan uji stabilitas jangka pendek dan jangka panjang, terutama terhadap perubahan pH, viskositas, dan warna, mengingat adanya kecenderungan oksidasi selama proses ekstraksi dan penyimpanan.

Perlu dilakukan perbandingan kinerja dengan eksipien sintetis yang umum digunakan seperti HPMC dan PVP, sehingga potensi lendir lidah buaya sebagai eksipien alami dapat dinilai secara komparatif dan objektif.

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