

A CHEMICAL STUDY OF MINT OIL

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We have previously established [1] that in the production of mint oil the still residue contains a considerable amount of high-boiling substances. From the fraction with bp 118–121° C/5 mm by separation on alkaline alumina (activity grade III) with subsequent purification on silica gel (eluant, n-hexane) we have isolated a yellow substance with a weak aromatic odor having bp 125–126° C/8 mm; d_{20}^{20} 0.9039; n_D^{20} 1.4997, $[\alpha]_D^{20}$ -7.1°; nitrosochloride with mp 158–159° C; dihydrochloride with mp 60–70° C. The substance was identified as β -caryophyllene [2].

A fraction with bp 125–130° C/5 mm gave an intense violet color with a solution of bromine in chloroform [3], and with the Ehrlich-Müller reagent [4] it gave a blue-violet color. After thrice-repeated chromatography on alkaline alumina, a substance was obtained with a faint yellow color and a weak aromatic odor having bp 130–131° C/9 mm; d_{20}^{20} 0.9249; n_D^{20} 1.5065; $[\alpha]_D^{20}$ +20.0°; MR65.78; $C_{15}H_{24}$.

The hydrogenation product had bp 107–108° C/5 mm; d_{20}^{20} 0.8917; n_D^{20} 1.4827; and the dehydrogenation product (a blue azulene), mp of TNB derivative 149–150° B (Kofler block), mp of TNT derivative 89° C. The physical properties of the compound isolated are close to those of guaiene [5]. Their IR absorption spectra and those of the hydrogenation products (guaiane) and dehydration products coincide completely.

The azulene is identical with S-guaiazulene [6] (chromatography with an authentic sample, IR spectra).

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