SUSUNAN KIMIA DJATI SERTA BERHUNGAN DENGAN TAKSONOMI DAN KATA HANNANHANNANJA TERHADAP INSEKTA

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for investigating the special properties of toakwood, the thorough knowledge of the extractives is required. only 8 years age, merely two extractives of teak were know : secondary calcium phosphate and tectequinone. meanwhile, however, the knowladge has been greatly onlarged some 40 other compounds have been found, the chemical constitution of many of which has been determined-. The folloiwing extractives were found: 6 new anthraquinones, 5 naphthoquinonos, 4 quinonos of still unknown structure, loaf-quinones ,2 nautral compounds with naphthalene rings (pierate formation)very small amounts of fatty oil (below 1%) consisting of 8 different fatty acids$_t$ Finally, The terpenoidalcompounds squalene betulic acid, one tiriterpeno C30 H48 O5 and two other terpenoids were found, The dchydronaphthol compounds, tectol and dehydrotecto1, clucidated in their constitution by decomposition and synthesis

The clucidation of the constitution of a large number of compounds makes possible certain insights into the biogenesis of these materials. Without about, teak has a vigorous isoprenoid metabolism exceeding even that of the pine species. Terpenes, sesquiterpenes, and

diterpenes ,however are not formed, but mainly caoutchouc and napnthoquinones with pronyl residues. The occurrence of substantial amounts of anthraquinonos leads to the assumption that.between those and the pronyl—naphthoquinoncs biogenetic relationship exists. However, this problem can be solved with the help of radioactive mevalonic acid and acetic acid only.

Regarding the cause of the durability, new results were gained. more or less all the anthraquinones found are effective against termites, in addition to lapachol and mainly dosoxylapachol, but not toctol and dishydrotcctol, . The anthraquinones proved ineffective against fungi, There arc many indications that the naphthoquinones, particularly desoxylapachol , are fungicidal. Some teak varieties bring about unpleasant allergic skin deseases. Test with pure substances showed that lapachol causes slight injuries of the skin, whereas desoxylapachol brings about rather romarkable ones, even with quantities of 0.5 y.

some technical properties of tonic may be explained on the basis of the kind and quantity of the extractives. Thus, the high content of caoutchouc should bo responsible for the abrasion and the resistance against mineral acids. However, it could not yet be settled whether the content of caoutchouc preconditions the favourable swelling behaviour, for caoutchouc is not found in the cellwell but in the lumen. with the surface finishing of wood, the extractives are

equally effective in some cases. Thus, the draying of polyester lacquers inhibited by tectol, dehydrotoctol and some naphthoquinones, though not by tectoquinone.

Even though not all interrelations between the extrative and the technical properties of the teak are cloared up yet, it is a fact that desoxylapachol is irjurious to health and thus not desired, whereas a high content of tectoquinones and caoutchouc is valuable. since simple and quick methods of analysis were elaborated for determaining these material in small wood samples, the contents of bore cores can be be dotermined taken from living trees. Thus a chemical selection of mother trees with optimum properties is possible an investigation of Indian and Indonesian teakwoods of different origin as well as an examination of bore cores from an Indonesian forest-experimental plot showed that the quantity of the different extractives seattered greatly in different teak varieties, with such tests it has to be noted that the distribution of the concentration of the extractives over the cross-section of the stemis is not uniform.

further studies have to settle the still unsolved problems such as the constitution of some extractives still unknow, the biogenesis of the naptho-and athraquinones with radioactively marked precursors, the importance of the caoutchouc for the swelling behaviour, and finally, the importance of the individual isolated compounds for the behaviour of teak againts wood

destroyers, particulary fungi.

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