of this centrifugation was suspended in sucrose solution and used as enzyme preparation.

The standard incubation mixture consisted of 0.1 ml enzyme suspension, 0.1 ml of a 0.1% solution of C^{14}(G)-L-tyrosine (50,000 cpm) and 0.2 ml phosphate buffer pH 7. The incubation was carried out at 37 °C aerobically under constant shaking. When appropriate, *p*-hydroxy- and dihydroxyphenylpyruvic acids were added to a final concentration of $5.5 \cdot 10^{-3} M$. The reaction was stopped with methanol, and the radioactive metabolites separated by paper chromatography in butanol saturated with *n*-HCl and scanned with a gas flow detector.

Results and discussion. Incubation of tyrosine with the phenoloxidase in the absence of inhibitors leads to a very rapid transformation of tyrosine to melanin, without the accumulation of intermediary metabolites other than small amounts of DOPA and a substance with an Rf value of 0.75 (see Figure a). Addition of the phenylcarboxylic acids leads to an overall inhibition of melanin synthesis, as well as to accumulation of DOPA and three other intermediates with Rf values of 0.06, 0.5 and 0.75 (see Figure b and c). Metabolite 0.5 is still capable of indole ring closure (positive reaction with potassium ferricyanide) and has very probably a quinone structure (positive reaction with phenylhydrazine). Compounds 0.06 and 0.75 are strong reducing agents. The exact nature of these compounds remains to be elucidated.

Accumulation of intermediates of tyrosine oxidation in the CNS could be of pathogenetic importance in oligophrenia phenylpyruvica, in which phenylcarboxylic acids are accumulated.

Accumulation of an oxidation product of adrenalin, adrenochrome, has been found in humans and correlated to the pathogenesis of schizophrenia. If one considers that adrenalin as well as the other catecholamines must be the natural substrates of the brain phenoloxidase, an interesting correlation between disturbances of melanogenesis and schizophrenia arises. The nature of these intermediates and their effect on the nervous system is currently under study.

Zusammenfassung. *p*-Hydroxy und 3,4-Dihydroxyphenylbrenztraubensäure hemmt die von Phenoloxydase katalysierte Umwandlung von Tyrosin in Melanin unter Anhäufung von Zwischenprodukten. Das Ergebnis wird im Zusammenhang mit der Pathogenese nervöser Störungen diskutiert.

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Pteridine Derivatives in the Skin of *Lacerta muralis* Laur.

Pteridine derivatives have been demonstrated in the dorsal skin of amphibians[1-4], reptiles[5-7], and fishes[8]. In these vertebrates, as also in some invertebrates, the fluorescent substances may play a role in oxidation-reduction processes. Quantitative differences have been observed in animals (amphibians[3]) living for about one month under conditions of total darkness in comparison with animals subjected to normal photoperiodism. Recently, a relationship between pteridines and pigmentation has been established[9-12]. In the present investigation, the occurrence of fluorescent pteridine derivatives was demonstrated in the skin of *Lacerta muralis*. Pteridine determinations were made by paper chromatography after extraction with ethanol or methanol. After centrifugation of extracts, the supernatant was chromatographed ascendingly in *n*-butanol-acetic acid-water (4:1:5) or *n*-propanol 1% NH_3 (2:1) in a dark room at 23 °C. These experiments demonstrate the occurrence of four fluorescent pteridines: 2-amino-4-hydroxy-pteridine-6-carboxylic acid, isoxanthopterin, biopterin and riboflavin in the dorsal skin of adults of *Lacerta muralis*. Some characteristics of these substances are given in the Table.

Pteridine derivatives	Rf values at pH 7[a]	Fluorescence
2-Amino-4-hydroxy-pteridine-6-carboxylic acid	0.16	blue
Isoxanthopterin	0.22	violet
Riboflavin	0.43	yellow
Biopterin	0.48	blue

[a] Solvent: *n*-butanol-acetic acid-water (4:1:5).

Through oxidation or UV-irradiation of biopterin, 2-amino-4-hydroxy-pteridine-6-carboxylic acid with a bright blue fluorescence has been obtained. No 2-amino-4-hydroxy-pteridine has been found in the dorsal skin of the adult animals examined.

Zusammenfassung. Aus der Haut von *Lacerta muralis* wurden die folgenden Pterine isoliert und identifiziert: 2-Amino-4-hydroxy-pteridin-6-carbonsäure, Isoxanthopterin, Riboflavin und Biopterin.

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