By chemical screening methods we detected in the mycelium of *Streptomyces griseoflavus* (strain Tü 2880) the colabomycin-complex and a second compound, called 2880-II (Rf values see Table 1). 2880-II absorbed UV light on Silica gel F<sub>254</sub>, and turned black with molybdatophosphoric acid and dark brown with vanillin-sulfuric acid. It could be separated from the crude extracts by silica gel chromatography and was further purified by repeated chromatography on Sephadex LH-20 (column 100 × 2.5 cm) in CHCl<sub>3</sub> and CHCl<sub>3</sub> - MeOH (9 : 1) yielding 2880-II as a yellow amorphous powder (0.2 mg/liter culture broth), which was soluble in DMF and DMSO, slightly soluble in CHCl<sub>3</sub>, and insoluble in water or hexane.

Physico-chemical properties of 2880-II are as follows: MP 272°C; IR (KBr, Fig. 1) cm<sup>-1</sup> 3430, 3360, 3070, 2930, 1695, 1605 (s), 1550, 1520; UV <i>λ</i><sub>max</sub> nm (ε) 322 (20,900), 250 (51,800); <i>λ</i><sub>max</sub> <i>HCl</i> 338 (28,500), 268 (30,500); <i>λ</i><sub>max</sub> <i>NaOH</i> 364 (28,800), 252 (46,100); electron impact mass spectra (EI-MS) (70 eV) <i>m/z</i> (abundance) 289 (45%, M<sup>+</sup>), high resolution (HR) calcd for C<sub>15</sub>H<sub>15</sub>N<sub>5</sub>O<sub>5</sub> and found: 289.0950), 177 (100%), calcd for C<sub>10</sub>H<sub>9</sub>O<sub>3</sub> and found: 177.0551), 145 (26%, calcd for C<sub>9</sub>H<sub>5</sub>O<sub>2</sub>: 145.0289). The upfield part of the <sup>1</sup>H NMR spectrum (200 MHz, DMF-<i>d</i><sub>7</sub>) revealed only two methylene groups at δ 2.53 (4'-H<sub>2</sub> and 5'-H<sub>2</sub>) and a methoxy singlet at δ 3.90. In the aromatic region an AX-system (<i>υ</i>=15.5 Hz) at δ 7.28 (8-H)/7.68 (7-H) and an AMX-system (<i>υ</i>=8 and 2 Hz) at δ 6.94 (5-H)/ 7.20 (6-H)/ 7.32 (2-H) were observed, thus indicating the presence of a trisubstituted benzene and an isolated double bond with E-configuration. Downfield the signals of two OH protons at δ 9.88 (4-OH)/13.78 (chelated, 3'-OH) and one NH proton (δ 9.78) occurred (all exchangeable with MeOH-<i>d</i><sub>4</sub>.

The <sup>13</sup>C NMR spectrum (50.3 MHz, DMF-<i>d</i><sub>7</sub), attached proton test: u; up for CH<sub>3</sub> or CH, d; down for CH<sub>2</sub> or C) showed eleven resonances: δ 55.9 (u, OCH<sub>3</sub>), 111.5 (u, C-2), 115.8 (d, C-2'), 116.1/116.3 (u/u, C-5 and C-8), 123.2 (u, C-6), 126.9 (d, C-1), 143.7 (u, C-7), 148.8 (d, C-4), 150.3 (d, C-3), 167.4 (d, C-9)<sup>)</sup>. With regard to

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**Table 1.** Rf values (TLC, silica gel) of the colabomycin-complex and 2880-II.

<table>
<thead>
<tr>
<th>Solvent system</th>
<th>Colabomycin-complex</th>
<th>2880-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHCl&lt;sub&gt;3&lt;/sub&gt; - MeOH (9:1)</td>
<td>0.46</td>
<td>0.39</td>
</tr>
<tr>
<td>EtOAc - MeOH - H&lt;sub&gt;2&lt;/sub&gt;O (6:2:1)</td>
<td>0.67</td>
<td>0.60</td>
</tr>
</tbody>
</table>

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<sup>)</sup> See ref 1.
the molecular formula C_{15}H_{15}NO_{5} four carbons were missing. This is typical for amide-bound 2-amino-3-hydroxycyclopent-2-enone as has been shown in the case of colabomycin A \(^{2}\). Reference to this moiety is given by the \(^{13}\)C NMR signal for C-2' at \(\delta\) 115.8 and the \(^{1}\)H NMR resonances of 3'-OH and 4'-H/5'-H.

To establish the correct substitution pattern of the trisubstituted benzene core, nuclear Overhauser enhancement (NOE) difference experiments were performed. Irradiation (DMF-d\(_7\)) at \(\delta\) 3.90 (OCH\(_3\)) resulted in an intensity enhancement at 2-H (11\%) only, thus indicating the neighborhood of OCH\(_3\) to 2-H. Irradiations (DMSO-d\(_6\)) at \(\delta\) 9.78 (NH) or 9.60 (4-OH) revealed intensity enhancements on 8-H (11\%) or 5-H (11\%), proving the spacial closeness of 8-H to NH and of 5-H to 4-OH. Due to the small difference in chemical shifts between NH and 4-OH there were less intensive NOE effects of the neighboring system, respectively. All these findings are consistent with (E)-N-(3-hydroxy-1-oxocyclopent-2-en-2-yl)-3-(4-hydroxy-3-methoxyphenyl)propanamide (=2880-II) represented by formula 1.

From the structural point of view 2880-II could be thought to be derived biosynthetically from ferulic acid (2), possibly as part of soybean meal\(^{4}\), and 2-amino-3-hydroxycyclopent-2-enone, generated from succinate and glycine via 5-aminolevulinic acid\(^{5}\). Thus the formation of 2880-II can be understood as directed biosynthesis using ingredients of soybean meal in the culture-medium. N-Feruloylglycine (3) was suspected to be a starter for the protein-biosynthesis in barley\(^{6}\) and might also be a building block of soybean protein. In our case the biosynthesis of the C\(_5\)N moiety might start from this precursor and proceed by addition of succinate and subsequent cyclization using a typical pathway of secondary metabolism. On the other hand ferulic acid could be linked to the already built C\(_5\)N moiety by a nonspecific amidase, as proposed for antibiotics of the manumycin group\(^{5}\) e.g. colabomycin\(^{2}\), which is produced by the same strain. In disc-diffusion assays against Gram-positive and Gram-negative bacteria, yeasts and fungi 2880-II showed no significant inhibitory activity up to 1 mg/ml. Ferulic acid is well known for its allelopathic interference with e.g. soybeans\(^{7}\) if exposed to the roots.

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References